

GENERAL LOCATION OF CONTRACT

# THE STATE OF DELAWARE DEPARTMENT OF TRANSPORTATION

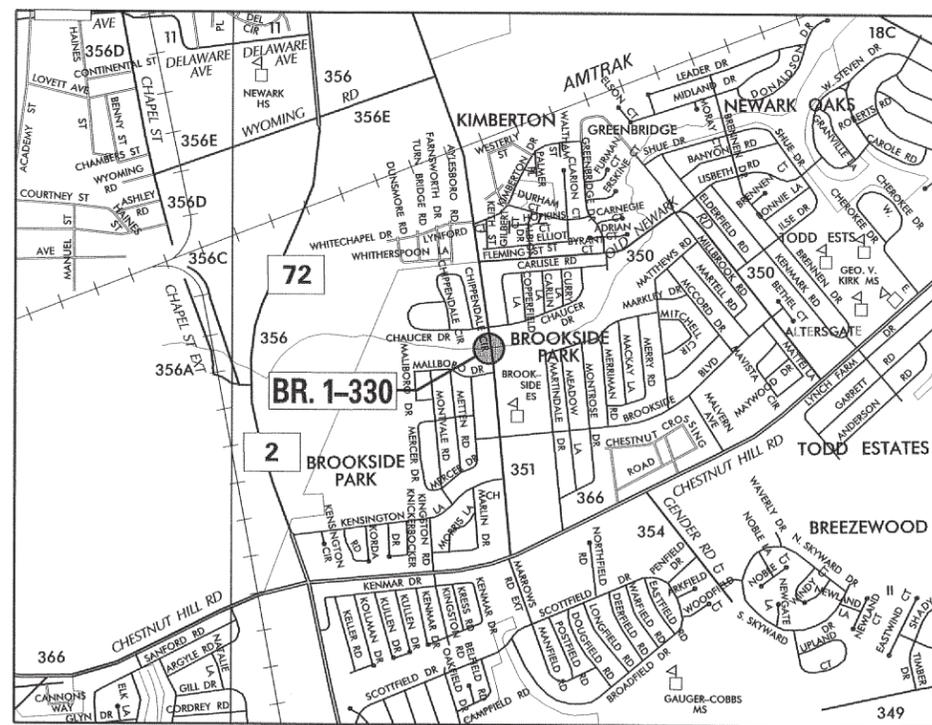
U.S. CUSTOMARY  
UNITS



## CONSTRUCTION PLANS FOR: BRIDGE 1-330 ON N351 MARROWS ROAD OVER COOL RUN

CONTRACT NUMBER: T200707104  
FEDERAL AID PROJECT NUMBER: \_\_\_\_\_

COUNTY: NEW CASTLE M.R. #: 351  
FROM MILEPOST \_\_\_\_\_ TO MILEPOST \_\_\_\_\_  
ROADWAY LENGTH: 274.67 FEET = 0.052 MILES  
STRUCTURE LENGTH: 18.33 FEET = 0.004 MILES  
TOTAL LENGTH: 293.00 FEET = 0.056 MILES



DESIGN DESIGNATION		
FUNCTIONAL CLASS: MAJOR COLLECTOR	D.H.V. PROJECTED:	YEAR:
TYPE OF CONSTRUCTION: BRIDGE REPLACEMENT	DESIGN SPEED: 30 M.P.H.	
A.A.D.T. CURRENT: 12,717	YEAR: 2007	TRUCKS: 11 %
A.A.D.T. PROJECTED: 15,458	YEAR: 2031	DIRECTION OF DISTRIBUTION: 55 %

INDEX OF SHEETS	
SHEET NO	TABLE OF CONTENTS
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10	CAST-IN-PLACE RIGID FRAME DETAILS
11	CAST-IN-PLACE WINGWALL AND PARAPET DETAILS
12	HANDRAIL DETAILS
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**DISCLAIMER:**  
THIS PLAN SET IS INTENDED TO BE A GUIDELINE FOR PREPARING A SET OF PLANS INVOLVING THE CONSTRUCTION OF A PRECAST CONCRETE THREE-SIDED FRAME. IT IS NOT INTENDED TO BE A SET OF STANDARDS. THE DESIGN ENGINEER IS STILL RESPONSIBLE FOR PERFORMING THE DESIGN AND NECESSARY DOCUMENTATION USING HIS/HER ENGINEERING JUDGEMENT AND EXPERTISE.

TOTAL SHEETS: 24

### APPROVED DESIGN EXCEPTIONS

DESIGN PARAMETER	REQUIRED	PROVIDED	DATE

### ADDENDA & REVISIONS

DESCRIPTION	NAME & DATE

### ASSOCIATED CONTRACTS

CONTRACT NO.	CONTRACT NAME

PREPARED BY  
THE CONSULTING FIRM OF

RECOMMENDED \_\_\_\_\_ DATE \_\_\_\_\_

RECOMMENDED

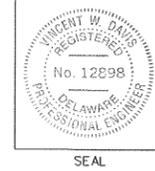
*[Signature]* 2/23/12  
SQUAD MANAGER, CONSTRUCTION DATE

*[Signature]* 2/23/12  
GROUP ENGINEER, CONSTRUCTION DATE

\_\_\_\_\_  
ASSISTANT DIRECTOR, TRANSPORTATION SOLUTIONS (CONSTRUCTION) DATE

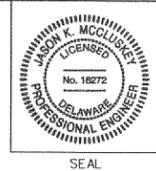
RECOMMENDED

*[Signature]*  
STORMWATER ENGINEER  
DATE 27 FEB 2012



RECOMMENDED

*[Signature]*  
SQUAD MANAGER, TRANSPORTATION SOLUTIONS (PROJECT DEVELOPMENT OR BRIDGE DESIGN)  
DATE 02.27.12



RECOMMENDED

*[Signature]*  
BRIDGE DESIGN ENGINEER  
DATE 2/27/12

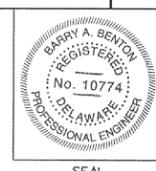


RECOMMENDED

\_\_\_\_\_  
GROUP ENGINEER, PROJECT DEVELOPMENT  
DATE \_\_\_\_\_

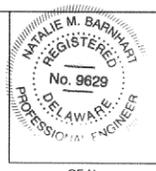
RECOMMENDED

*[Signature]*  
ASSISTANT DIRECTOR, TRANSPORTATION SOLUTIONS  
DATE FEBRUARY 27, 2012



APPROVED

*[Signature]*  
CHIEF ENGINEER  
DATE February 28, 2012



LAST REVISED: 2/6/2008  
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## EXISTING SYMBOLS

DRAINAGE	
	DITCH OR STREAM CENTERLINE
	DIRECTIONAL STREAM FLOW ARROW
	DRAINAGE INLET
	DRAINAGE JUNCTION BOX
	DRAINAGE MANHOLE
	DRAINAGE PIPE AND FLOW ARROW
	DRAINAGE PIPE HEADWALL
	RIPRAP - AREA FEATURE
	RIPRAP - LINEAR FEATURE

MANMADE ROADSIDE FEATURES	
	BOLLARD - STEEL POLE
	BOLLARD - WOOD POST
	CURB
	CURB AND GUTTER
	FENCE - CHAINLINK OR STRANDED
	FENCE - STOCKADE OR SPLIT RAIL
	FLAG POLE
	GUARDRAIL - STEEL BEAM
	GUARDRAIL - WIRE ROPE
	LAMP AND POST - RESIDENTIAL
	MAILBOX
	PARKING METER AND POST
	PAVEMENT - FLEXIBLE
	PAVEMENT - RIGID
	PILE - BRIDGE
	PILLAR OR MISCELLANEOUS POST
	TRAFFIC SIGN AND POST
	WALL - BRICK OR BLOCK
	WALL - STONE

NATURAL ROADSIDE FEATURES	
	GRASS LAWN
	HEDGEROW OR THICKET
	MARSH BOUNDARY LINE
	TREE - CONIFEROUS
	TREE - DECIDUOUS
	TREE STUMP
	SHRUBBERY
	DELINEATED WETLAND BOUNDARY LINE
	WOODS LINE BOUNDARY

RIGHT-OF-WAY SYMBOLS	
	PROPERTY MARKER - CONCRETE MON.
	PROPERTY MARKER - IRON PIPE
	HISTORIC RIGHT-OF-WAY BASELINE
	EXISTING RIGHT-OF-WAY
	EXISTING PROPERTY LINE
	EXISTING EASEMENT
	EXISTING DENIAL OF ACCESS
	EXISTING R/W & DENIAL OF ACCESS

SURVEY CONTROL & MONUMENTATION	
	SURVEY BENCHMARK LOCATION
	SURVEY TIE POINT LOCATION
	SURVEY TRAVERSE POINT
	POINT OF CURVATURE OR TANGENCY
	POINT OF INTERSECTING TANGENTS

UTILITY	
	SOIL BORING LOCATION
	UTILITY TEST HOLE LOCATION
	CABLE TV DISTRIBUTION BOX
	ELECTRIC MANHOLE
	ELECTRIC METER
	ELECTRIC TRANSFORMER
	POLE MOUNTED LUMINAIRE
	GAS MANHOLE
	GAS METER
	GAS VALVE
	GAS PUMP - SERVICE STATION
	RAILROAD TRACKS
	SANITARY SEWER MANHOLE
	SANITARY SEWER VALVE
	SANITARY SEWER VENT OR CLEANOUT
	SEPTIC DRAIN FIELD
	TELEPHONE BOOTH
	TELEPHONE MANHOLE
	TELEPHONE TEST POINT
	TRAFFIC - CONDUIT JUNCTION WELL
	TRAFFIC - LIGHT POLE AND BASE
	TRAFFIC - PEDESTRIAN POLE & BASE
	TRAFFIC - SIGNAL CABINET & BASE
	TRAFFIC - SIGNAL POLE AND BASE
	UTILITY BOX
	UTILITY POLE GUY WIRE ANCHOR
	UTILITY POLE
	WATER - FIRE HYDRANT
	WATER METER
	WATER VALVE
	WELL HEAD
	MANHOLE - UNDETERMINED OWNER

UTILITY COMPANY FACILITIES	
	NEW CASTLE COUNTY - SEWER
	COMCAST CABLE (AERIAL)
	VERIZON (AERIAL)
	VERIZON (UNDERGROUND, 8" SQ. BUNDLE)
	UNITED WATER - WATER MAIN

CONSTRUCTION	
	CONCRETE SAFETY BARRIER - PERMANENT
	BIOFILTRATION SWALE
	BOLLARD - STEEL POLE
	BOLLARD - WOOD POST
	BRICK PATTERNED SURFACE
	BUTT JOINT
	CONSTRUCTION BASELINE
	CONSTRUCTION SAFETY FENCE
	CURB, TYPE 1 & TYPE 3
	CURB, TYPE 2
	CURB & GUTTER, TYPE 1
	CURB & GUTTER, TYPE 2
	CURB & GUTTER, TYPE 3
	CURB & GUTTER, TYPE 4
	CLEAR ZONE
	DRAINAGE INLET
	DITCH
	FENCE - METAL
	FENCE - WOOD
	FLARED END SECTION
	GUARDRAIL, TYPE 1
	GUARDRAIL, TYPE 2
	GUARDRAIL, TYPE 3
	GUARDRAIL END ANCHORAGE
	GUARDRAIL END TREATMENT, TYPE 1
	GUARDRAIL END TREATMENT, TYPE 2
	GUARDRAIL END TREATMENT, TYPE 3
	HORIZONTAL CLEARANCE
	IMPACT ATTENUATOR
	JUNCTION BOX - DRAINAGE
	LIMIT OF CONSTRUCTION
	MANHOLE
	PAVEMENT PATCH
	PAVEMENT REMOVAL - TOPSOIL, SEED AND MULCH
	PIPE & DIRECTIONAL FLOW ARROW
	RIPRAP
	P.C.C. SIDEWALK @ 4"
	P.C.C. SIDEWALK @ 6"
	UNDERDRAIN
	UNDERDRAIN OUTLET

RIGHT-OF-WAY SYMBOLS	
	PROPOSED RIGHT-OF-WAY MONUMENT
	PROPOSED DENIAL OF ACCESS
	PROPOSED PERMANENT EASEMENT
	PROPOSED RIGHT-OF-WAY
	PROPOSED R/W & DENIAL OF ACCESS
	TEMPORARY CONSTRUCTION EASEMENT
	PROPOSED RIGHT-OF-WAY BASELINE

## PROPOSED SYMBOLS

IDENTIFIERS	
	ADJUST BY CONTRACTOR
	ADJUST BY OTHERS
	CONCRETE SAFETY BARRIER
	CURB OR CURB & GUTTER
	CONVERT TO JUNCTION BOX
	CONVERT TO DRAINAGE MANHOLE
	CURB OPENING
	CURB RAMP / TYPE
	CURB RAMP / TYPE - WITHOUT SIDEWALK SURFACE DETECTABLE WARNING SYSTEM
	CONSTRUCTION SAFETY FENCE
	DRAINAGE INLET
	DO NOT DISTURB
	ENERGY DISSIPATOR
	FENCE
	FLARED END SECTION
	FILL WITH FLOWABLE FILL
	FILTRATION STRUCTURE
	GUARDRAIL
	JUNCTION BOX
	MANHOLE
	MONUMENT - RIGHT-OF-WAY
	PIPE
	RELOCATE BY CONTRACTOR
	RELOCATE BY OTHERS
	REMOVE BY CONTRACTOR
	REMOVE BY OTHERS
	UNDERDRAIN / LENGTH
	UNDERDRAIN OUTLET PIPE

LANDSCAPING	
	LANDSCAPE PLANTINGS
	SHRUBBERY
	CONIFEROUS TREE
	DECIDUOUS TREE

TRAFFIC	
	ITMS CONDUIT
	SIGNAL CONDUIT
	CONDUIT JUNCTION WELL
	LUMINAIRE
	PAVEMENT MARKINGS
	PAVEMENT STRIPING
	TRAFFIC SIGN

PAVEMENT SECTION(S)	
	2" SUPERPAVE, TYPE C HOT-MIX, PG 70-22, 160 GYRATIONS
	2 1/4" SUPERPAVE, TYPE B HOT-MIX, PG 70-22, 160 GYRATIONS
	VARIABLE DEPTH SUPERPAVE, BCBC, PG 64-22, 160 GYRATIONS
	2" SUPERPAVE, TYPE C HOT-MIX, PG 70-22, 160 GYRATIONS
	2 1/4" SUPERPAVE, TYPE B HOT-MIX, PG 70-22, 160 GYRATIONS
	6" SUPERPAVE, BCBC, PG 64-22, 160 GYRATIONS
	8" GABC, TYPE B
	2" DEPTH MILL AND OVERLAY, REPLACE WITH 2" SUPERPAVE, TYPE C HOT-MIX, PG 70-22, 160 GYRATIONS

UTILITY COMPANY FACILITIES	
	NEW CASTLE COUNTY - SEWER
	COMCAST CABLE (AERIAL)
	VERIZON (AERIAL)
	VERIZON (UNDERGROUND, 8" SQ. BUNDLE)
	UNITED WATER - WATER MAIN

LAST REVISED: 11/09/2010  
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# GENERAL NOTES

- THIS PROJECT IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE DELAWARE DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS", DATED AUGUST 2001 AND THE DELAWARE DEPARTMENT OF TRANSPORTATION "STANDARD CONSTRUCTION DETAILS", DATED 2001, INCLUDING ALL REVISIONS UP TO THE DATE OF ADVERTISEMENT.
- THE CONTRACTOR SHALL GIVE TWO (2) WEEKS NOTICE TO THE PROPERTY OWNER WHEN ANY FIXTURE, SHRUB OR OTHER OBJECT MUST BE REMOVED FROM THE RIGHT OF WAY OR EASEMENT AREA. IF THE OWNER HAS NOT ATTEMPTED TO SALVAGE THIS PROPERTY, THE CONTRACTOR SHALL REMOVE IT WITHOUT OBLIGATION. COMPENSATION SHALL BE INCIDENTAL TO THE CONTRACT.
- THE ENDS OF ALL CURBS SHALL BE DEPRESSED FLUSH WITH THE PAVEMENT AT A RATIO OF TWELVE TO ONE (12:1) UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
- THE CONTRACTOR SHALL PROVIDE AND INSTALL PVC SLEEVES (4" INSIDE MINIMUM DIAMETER, 6" INSIDE MAXIMUM DIAMETER) IN PROPOSED CONCRETE SIDEWALKS, ISLANDS, AND MEDIANS FOR FUTURE TRAFFIC SIGN POSTS AS DIRECTED BY THE ENGINEER. THE LOWER END OF THE SLEEVE SHALL SIT ON THE TOP OF THE SUBBASE MATERIAL. THE COST SHALL BE INCIDENTAL TO THE CONTRACT.
- STAGING AREAS - PROPER EROSION AND SEDIMENT CONTROL MEASURES AS DETERMINED BY THE ENGINEER SHALL BE INSTALLED IN ALL STAGING AREAS. ALL AREAS USED BY THE CONTRACTOR FOR STAGING OPERATIONS SHALL BE FULLY RESTORED BY THE CONTRACTOR UPON COMPLETION OF THE CONTRACT. IF THE STAGING AREA IS PAVED, IT SHALL BE RESTORED TO ITS ORIGINAL CONDITION. IF THE AREA IS UNPAVED, IT SHALL BE RE-GRADED, TOPSOILED, SEEDED AND MULCHED IN ACCORDANCE WITH DELAWARE STANDARD SPECIFICATIONS 732, 734 AND 735, FOR TOPSOIL, SEED AND MULCH RESPECTIVELY, TO THE SATISFACTION OF THE ENGINEER. THE SEED SHALL ADHERE TO THE SPECIFICATIONS OF SECTION 734 FOR PERMANENT GRASS SEEDING - DRY GROUND. ALL COSTS ASSOCIATED WITH RESTORATION OF THE STAGING AREA SHALL BE AT THE CONTRACTOR'S EXPENSE. IF THE ENGINEER DETERMINES THAT A SATISFACTORY STAND OF GRASS DOES NOT EXIST AT THE TIME OF FINAL INSPECTION, ALL COSTS ASSOCIATED WITH REESTABLISHING A SATISFACTORY STAND OF GRASS SHALL BE AT THE CONTRACTOR'S EXPENSE.
- SITE REVIEWER - AN EROSION CONTROL SITE REVIEWER SHALL BE A PERSON FROM THE CONTRACTOR'S STAFF ASSIGNED TO EROSION AND SEDIMENT CONTROL IMPLEMENTATION AND MAINTENANCE AND SHALL BE REQUIRED ON SPECIFIC PROJECTS. THE NAME AND DNREC CERTIFICATION NUMBER OF EACH SITE REVIEWER SO REQUIRED SHALL BE SUBMITTED TO THE DEPARTMENT AT THE TIME OF BID. THE NAME OF THE DELAWARE REGISTERED PROFESSIONAL ENGINEER PROVIDING DIRECTION AND SUPERVISION OF THE SITE REVIEWER, AS REQUIRED IN SECTION 12.3 OF THE DELAWARE SEDIMENT AND STORMWATER REGULATIONS, SHALL ALSO BE SUBMITTED TO THE DEPARTMENT AT THE TIME OF BID. THE SITE REVIEWER REQUIREMENTS IN EFFECT ON THIS PROJECT SHALL BE MARKED WITH AN "X" BELOW:

EROSION POTENTIAL FOR THIS PROJECT	SITE REVIEWER REQUIREMENT
( ) INSIGNIFICANT	NONE
( ) MINOR	CONTRACTOR CERTIFICATION COURSE TRAINING ONLY, AS DEFINED IN SECTION 13 OF THE DELAWARE SEDIMENT AND STORMWATER REGULATIONS.
( X ) MEDIUM	AT THE TIME OF BID OF THE CONTRACT, EITHER THE SUPERINTENDENT OR A SEPARATE INDIVIDUAL FROM THE CONTRACTOR'S STAFF SHALL BE A CERTIFIED CONSTRUCTION REVIEWER (CCR), AS DEFINED IN SECTION 12 OF THE DELAWARE SEDIMENT AND STORMWATER REGULATIONS.
( ) MAJOR	SUPERINTENDENT AND AN INDIVIDUAL FROM CONTRACTOR'S STAFF SHALL BE CCR. ONE INDIVIDUAL FROM THE CONTRACTOR'S STAFF MUST BE A CCR AT THE TIME OF BID OF THE CONTRACT. THE SUPERINTENDENT MUST BECOME A CCR WITHIN ONE YEAR AFTER THE AWARD OF CONTRACT.

- ELECTRONIC PROJECT FILES THAT WILL BE MADE AVAILABLE TO THE CONTRACTOR INCLUDE:

( X )	NONE
( )	ASCII DATA FILES WITH COORDINATES AND ELEVATIONS FOR PROPOSED POINTS AS SELECTED BY THE ENGINEER.
( )	RASTER FILES, IN .CAL FILE FORMAT, FOR ALL PLAN SHEETS.
( )	EXISTING DIGITAL TERRAIN MODEL, IN .DTM FILE FORMAT, COMPATIBLE WITH SOFTWARE CURRENTLY USED BY DELDOT.
( )	PROPOSED DIGITAL TERRAIN MODEL, IN .DTM FILE FORMAT, COMPATIBLE WITH SOFTWARE CURRENTLY USED BY DELDOT.
( )	DESIGN FILE, IN .DGN FILE FORMAT, CONTAINING ONLY THE PROPOSED 3D TRIANGLES OF THE PROPOSED DIGITAL TERRAIN MODEL (DTM).

NOTE: THE DOCUMENT ENTITLED "RELEASE FOR DELIVERY OF DOCUMENTS IN ELECTRONIC FORM TO A CONTRACTOR" MUST BE SIGNED BY ALL PARTIES PRIOR TO THE DELIVERY OF ANY ELECTRONIC PROJECT FILES.

- AMERICAN TRAFFIC SAFETY SERVICES ASSOCIATION (ATSSA) CERTIFIED TRAFFIC CONTROL SUPERVISOR REQUIREMENT FOR THIS PROJECT.

( X )	THE CONTRACTOR SHALL NOT BE REQUIRED TO HAVE AN ATSSA SUPERVISOR ASSIGNED TO THIS PROJECT.
( )	THE CONTRACTOR SHALL HAVE AN ATSSA SUPERVISOR ASSIGNED TO THIS PROJECT. THE CONTRACTOR'S GENERAL SUPERINTENDENT FOR THIS PROJECT OR ANOTHER ATSSA CERTIFIED MEMBER OF THE CONTRACTOR'S PROJECT STAFF MAY BE THE ATSSA SUPERVISOR.
( )	THE CONTRACTOR SHALL HAVE AN ATSSA SUPERVISOR ASSIGNED TO THIS PROJECT. THE ATSSA SUPERVISOR'S SOLE JOB SHALL BE SUPERVISION OF THE INSTALLATION, OPERATION AND MAINTENANCE OF TRAFFIC CONTROL DEVICES FOR THIS PROJECT. THE CONTRACTOR'S GENERAL SUPERINTENDENT FOR THIS PROJECT SHALL NOT BE THE ATSSA SUPERVISOR.

- THE DISTURBED AREA FOR THIS PROJECT IS 0.487 ACRES.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADHERING TO THE CONSTRUCTION SITE POLLUTION PREVENTION SPECIFICATIONS AS DETAILED IN SECTION 3.6 OF THE "DELAWARE EROSION AND SEDIMENT CONTROL HANDBOOK". ALL COSTS ASSOCIATED WITH ADHERING TO THE STANDARDS SHALL BE INCIDENTAL TO THE OVERALL CONTRACT COSTS.
- THE EROSION AND SEDIMENT CONTROL PLANS HAVE BEEN APPROVED BY DELDOT'S STORMWATER ENGINEER UNDER DELDOT'S DELEGATED AUTHORITY. THE EROSION AND SEDIMENT CONTROL PLANS ARE VALID FOR A THREE YEAR PERIOD, BEGINNING ON THE DATE THE STORMWATER ENGINEER SIGNED THE CONSTRUCTION TITLE SHEET. IF THE FINAL ACCEPTANCE OF THE PROJECT IS ANTICIPATED TO EXTEND BEYOND THE THREE YEARS, THE CONTRACTOR SHALL INFORM THE ENGINEER THREE MONTHS PRIOR TO THE EXPIRATION OF THE EROSION AND SEDIMENT CONTROL PLAN APPROVAL. DELDOT WILL REVIEW THE CURRENT EROSION AND SEDIMENT CONTROL PLAN AND ISSUE AN EXTENSION WITH ANY APPROPRIATE MODIFICATIONS.

# PROJECT NOTES

## SECTION 100

- ANY DAMAGE TO ITEMS NOTED TO BE RELOCATED OR RESET BY THE CONTRACTOR, AT THE DISCRETION OF THE ENGINEER, SHALL BE REPAIRED AND/OR REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE.
- UNLESS OTHERWISE NOTED ON THE PLANS, THE CONTRACTOR SHALL, AS PART OF HIS PROJECT SCHEDULE, SUBMIT TO THE ENGINEER AN ESTIMATE OF THE MONTHLY PAYMENTS EXPECTED TO BE RECEIVED ON THE CONTRACT. THIS WILL BE REFERENCED AS THE "MONTHLY PAYMENT CHART".

A CHART IN MICROSOFT EXCEL, MICROSOFT WORD, OR HAND WRITTEN FORMAT WILL BE ACCEPTABLE FOR THIS PURPOSE. THE CHART SHOULD INCLUDE, AS A MINIMUM, COLUMNS FOR THE MONTH, YEAR AND ESTIMATED MONTHLY PAYMENTS. THE TOTAL OF ALL ESTIMATED MONTHLY PAYMENTS SHOULD EQUAL THE AWARDED CONTRACT TOTAL BID PRICE.

THE ENGINEER MAY REQUEST AN UPDATED "MONTHLY PAYMENT CHART" AT HIS DISCRETION, DEPENDING ON THE ACCURACY OF THE INITIAL ESTIMATES AND ACCORDING TO THE OVERALL NEEDS OF THE DEPARTMENT.

THE "MONTHLY PAYMENT CHART" WILL NOT BE CONSIDERED A BINDING DOCUMENT BY EITHER THE CONTRACTOR OR THE DEPARTMENT AND IS CONSIDERED SOLELY INFORMATIONAL.

ON PROJECTS REQUIRING CPM SCHEDULES, THE CONTRACTOR MAY, BUT IS NOT REQUIRED TO, "COST LOAD" THE CPM SCHEDULE IN ORDER TO GENERATE THE MONTHLY SPEND PAYMENT CHART.

COSTS TO PREPARE AND/OR UPDATE THE "MONTHLY PAYMENT CHART" ARE ADDRESSED AS FOLLOWS:

- ON CONTRACTS REQUIRING CPM SCHEDULES AND UPDATES, PREPARATION OF THE INITIAL CHART SHALL BE INCIDENTAL TO ITEM 763508. UPDATES SHALL BE INCIDENTAL TO ITEM 763509.
- ON CONTRACTS NOT REQUIRING CPM SCHEDULES, THE COST TO PREPARE AND UPDATE THE "MONTHLY PAYMENT CHART" SHALL BE INCLUDED IN ITEM 763000 - INITIAL EXPENSE.

## SECTION 200

- SHORING SHALL BE REQUIRED FOR ANY EXCAVATION EXCEEDING 5 FEET IN HEIGHT. THE COST OF SHORING SHALL BE INCIDENTAL TO ITEM 207000 - EXCAVATION AND BACKFILL FOR STRUCTURES. IN LIEU OF SHORING, THE CONTRACTOR MAY USE A 2:1 CUT SLOPE. NO PAYMENT SHALL FOR ADDITIONAL EXCAVATION OR FILL OUTSIDE THE LIMITS AS DEFINED IN EITHER SECTION 207 OR SECTION 208 OF THE STANDARD SPECIFICATIONS.
- ITEMS TO BE REMOVED UNDER ITEM 211000 - REMOVAL OF STRUCTURES AND OBSTRUCTIONS SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING:
  - REMOVAL OF THE EXISTING STRUCTURE IN ITS ENTIRETY INCLUDING ALL STONE PARAPETS AND HANDRAILS
  - REMOVAL OF THE EXISTING CONCRETE SLAB AND ANY FOOTERS UNDER THE BRIDGE AND WITHIN THE CHANNEL
  - REMOVAL OF THE EXISTING MORTARED STONE SLOPE STABILIZATION
- ALL EXISTING PAVEMENT FROM STA. 2+00 TO STA. 3+00 AS SHOWN ON THE PLAN SHALL BE EXCAVATED IN ITS ENTIRETY. PAYMENT FOR HOTMIX REMOVAL UNDER ITEM 202000 - EXCAVATION AND EMBANKMENT.

## SECTION 600

- PORTLAND CEMENT CONCRETE
  - STRUCTURAL ELEMENTS OF PORTLAND CEMENT CONCRETE SHALL BE AS NOTED: (F'c = 28 DAY COMPRESSIVE STRENGTH)
  - CLASS A CONCRETE - FOOTER, RIGID FRAME, WINGWALLS AND PARAPET (F'c = 4500 psi)
  - MIX REQUIREMENTS SHALL CONFORM TO SECTION 812 OF THE SPECIFICATIONS.
  - ALL EXPOSED EDGES SHALL BE CHAMFERED 3/8" UNLESS OTHERWISE NOTED.
  - ALL KEYED CONSTRUCTION JOINTS SHALL BE 2" x 4" UNLESS OTHERWISE NOTED.
  - ALL EXPOSED CONSTRUCTION JOINTS EDGES SHALL HAVE A 3/8" V-NOTCH.
- BAR REINFORCEMENT
  - REINFORCING STEEL SHALL CONFORM TO AASHTO M31 (ASTM A615), GRADE 60. ALL REINFORCING STEEL SHALL HAVE A CLEAR COVER OF 2", UNLESS OTHERWISE SPECIFIED ON THE PLANS. ALL REINFORCING STEEL SHALL BE PROTECTED WITH FUSION BONDED EPOXY. EPOXY COATED REINFORCING STEEL SHALL CONFORM TO AASHTO M284 (ASTM D3963) AND IS DENOTED WITH A SUFFIX 'E' IN THE BAR MARKS.
- LIMITS OF COARSE AGGREGATE FOR FOUNDATION STABILIZATION SHALL EXTEND 18" OUTSIDE OF THE NEAT LINE PERIMETER OF THE VERTICAL FACES OF ANY FOOTER, ENCASEMENT OR STRUCTURAL UNIT.
- AN EXISTING 21" REINFORCED CONCRETE DRAIN PIPE LOCATED UNDER THE NORTHWEST SHOULDER AND CONNECTING INTO THE EXISTING STRUCTURE AT THE NORTHWEST CORNER SHALL BE PARTIALLY REPLACED. THE CONTRACTOR SHALL REMOVE 32 LINEAR FEET (4-8 FOOT SECTIONS) OF THE EXISTING R.C.P. DURING REMOVAL OF THE STRUCTURE WITH PAYMENT INCIDENTAL TO ITEM 211000 - REMOVAL OF STRUCTURES AND OBSTRUCTIONS. THIS PIPE SERVICES STORM DRAINS ALONG THE WEST SIDE OF MARROWS ROAD SO ANY POTENTIAL DRAINAGE FLOW WILL NEED TO BE PROPERLY MAINTAINED AND DIVERTED ACCORDINGLY. THE METHOD UTILIZED SHALL BE AT THE CONTRACTOR'S DISCRETION AND SHALL COMPLY WITH AND BE INCIDENTAL TO ITEM 265500 - STREAM DIVERSION AND ANY ASSOCIATED ITEMS. AFTER THE PROPOSED STRUCTURE IS CAST, THE REMAINING EXISTING 21" R.C.P. SHALL BE RECONNECTED TO THE STRUCTURE VIA THE PROPOSED 21" R.C.P. AS PER THE DETAILS SHOWN IN THESE PLANS. IF THE CONNECTION BETWEEN THE EXISTING AND PROPOSED 21" R.C.P. IS DETERMINED TO BE INADEQUATE AS PER THE ENGINEER IN THE FIELD, A 6" (MIN.) C.I.P. CONCRETE COLLAR SHALL BE UTILIZED TO STABILIZE AND CLOSE THIS CONNECTION. THE PAYMENT FOR FURNISHING, PLACING AND CONNECTING THE NEW 32 LINEAR FEET OF 21" R.C.P. TO THE PROPOSED STRUCTURE AND TO THE EXISTING 21" R.C.P., SHALL BE AS PER ITEM 612004 - REINFORCED CONCRETE PIPE, 21", CLASS III.
- THE EXISTING STRUCTURAL STONE SHALL BE CAREFULLY SALVAGED AND REUSED AS MUCH AS POSSIBLE IN THE PROPOSED STRUCTURE. THE CONTRACTOR SHALL PREPARE ALL REUSABLE SALVAGED STONE IN ACCORDANCE WITH THE REQUIREMENTS DEFINED FOR PROPOSED STONE VENEER IN ITEM 610001 - STONE MASONRY AND ANY DETAILS IN THESE PLANS. ANY EXISTING STONE THAT IS NOT DEEMED SUITABLE FOR REUSE AS PER THE REQUIREMENTS DEFINED IN ITEM 610001 AND THE ENGINEER IN THE FIELD, SHALL BE PROVIDED TO THE BROOKSIDE COMMUNITY CENTER. THE CONTRACTOR MAY CONTACT MR. BILL WHEATLEY OF THE BROOKSIDE COMMUNITY COUNCIL AT PH. 302-453-0152 OR 302-897-5116 FOR ADDITIONAL DIRECTION AND ASSISTANCE IN PROVIDING ANY UNUSABLE STONE TO THEM. PAYMENT TO DISMANTLE THE EXISTING STONE, SORTING THE STONE, AND PROCESSING FOR REUSE OR DISPOSAL SHALL BE AS PER ITEM 211000 - REMOVAL OF STRUCTURES AND OBSTRUCTIONS. ALL PREPARATION WORK REQUIRED TO MODIFY ANY REUSED STONE FOR THE PROPOSED STONE VENEER SHALL BE AS PER ITEM 610001 - STONE MASONRY AND ANY DETAILS IN THESE PLANS.

## SECTION 600 (CONT.)

- PAYMENT FOR ALL STRUCTURAL CONCRETE SHALL BE AS PER THE FOLLOWING:
  - FRAME AND WINGWALL FOOTERS:
    - ITEM 602003 - PCC MASONRY, ABUTMENT FOOTING, CLASS A
  - RIGID FRAME LEGS TO BOTTOM OF HAUNCH AND WINGWALL STEMS:
    - ITEM 602015 - PCC MASONRY, ABUTMENT ABOVE FOOTING, CLASS A
  - PARAPET STEM AND CAP:
    - ITEM 602017 - PCC MASONRY, PARAPET, CLASS A
  - HAUNCHES, DECK SLAB AND HEADWALLS:
    - ITEM 602019 - PCC MASONRY, SUPERSTRUCTURE, CLASS A
- TWO MODIFIED TYPE 'C' DRAINAGE INLETS WILL BE REQUIRED IN THE DECK SLAB TO PROVIDE ADDITIONAL SHOULDER DRAINAGE ON THE BRIDGE. PLACEMENT AND MODIFICATION OF THESE DRAINAGE INLETS SHALL BE AS PER THE DETAILS SHOWN ON THE "BRIDGE PLAN, SECTION AND ELEVATION SHEET. PAYMENT FOR ALL MATERIALS AND LABOR REQUIRED FOR PLACEMENT SHALL BE INCIDENTAL TO ITEM 602019 - PCC MASONRY, SUPERSTRUCTURE, CLASS A.

## SECTION 700

- WHERE PROPOSED CONCRETE SIDEWALK IS CONSTRUCTED TO MEET EXISTING SIDEWALK, THE EXISTING SIDEWALK SHALL BE SAWCUT AT THE TIE-IN POINT OR MEET THE NEAREST EXISTING SIDEWALK JOINT. ALL SAW CUTTING SHALL BE FULL DEPTH, UNLESS OTHERWISE NOTED ON THE PLANS OR DIRECTED BY THE ENGINEER AND SHALL BE PAID FOR UNDER ITEM 762002 - SAWCUTTING, CONCRETE, FULL DEPTH.
- STATION AND ELEVATION DATA GIVEN FOR DRAINAGE STRUCTURES ARE TO BE APPLIED TO THE CENTER OF THE GRATE FOR INLETS, AND TO THE CENTER OF THE STRUCTURE FOR JUNCTION BOXES AND MANHOLES.
- ALL PAVED AREAS TO BE REPLACED OR OVERLAYED SHALL BE SAWCUT AT THE POINT WHERE THE NEW PAVEMENT IS TO TIE INTO THE EXISTING PAVEMENT. ALL HOT-MIX SAWCUTTING SHALL BE FULL DEPTH, UNLESS OTHERWISE NOTED ON THE PLANS, OR AS DIRECTED BY THE ENGINEER.
- ALL PAVEMENT BETWEEN STATIONS 0+57 TO 2+00 AND 3+00 TO 3+50 SHALL BE MILLED TO DEPTH OF 2" UNLESS NOTED OTHERWISE (E.G., UNDERGROUND UTILITY RELOCATIONS) IN THESE PLANS. REMOVAL SHALL BE AS PER ITEM 760000 - PAVEMENT-MILLING, HOT-MIX.

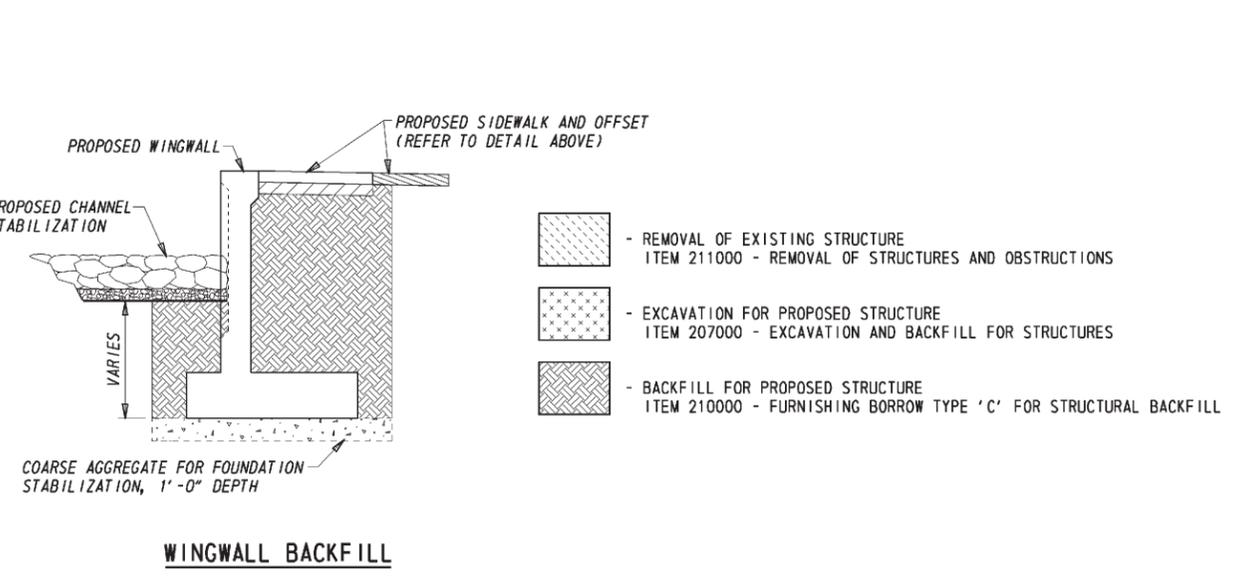
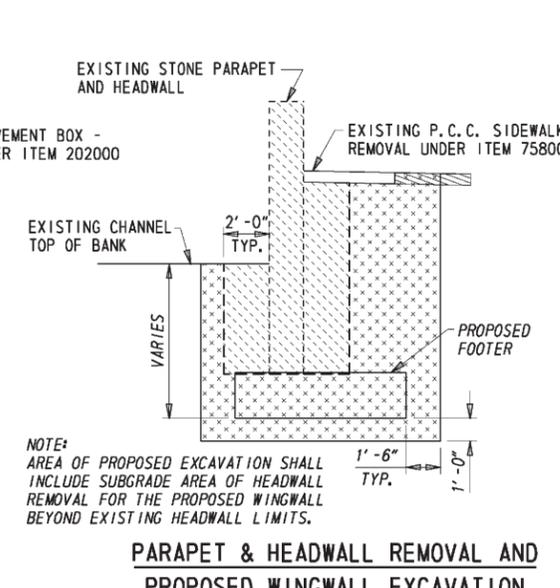
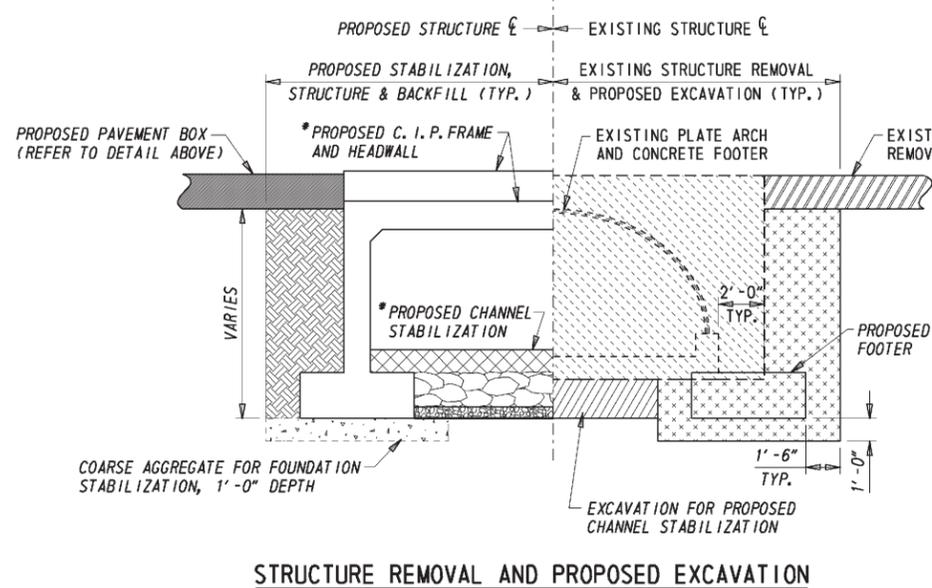
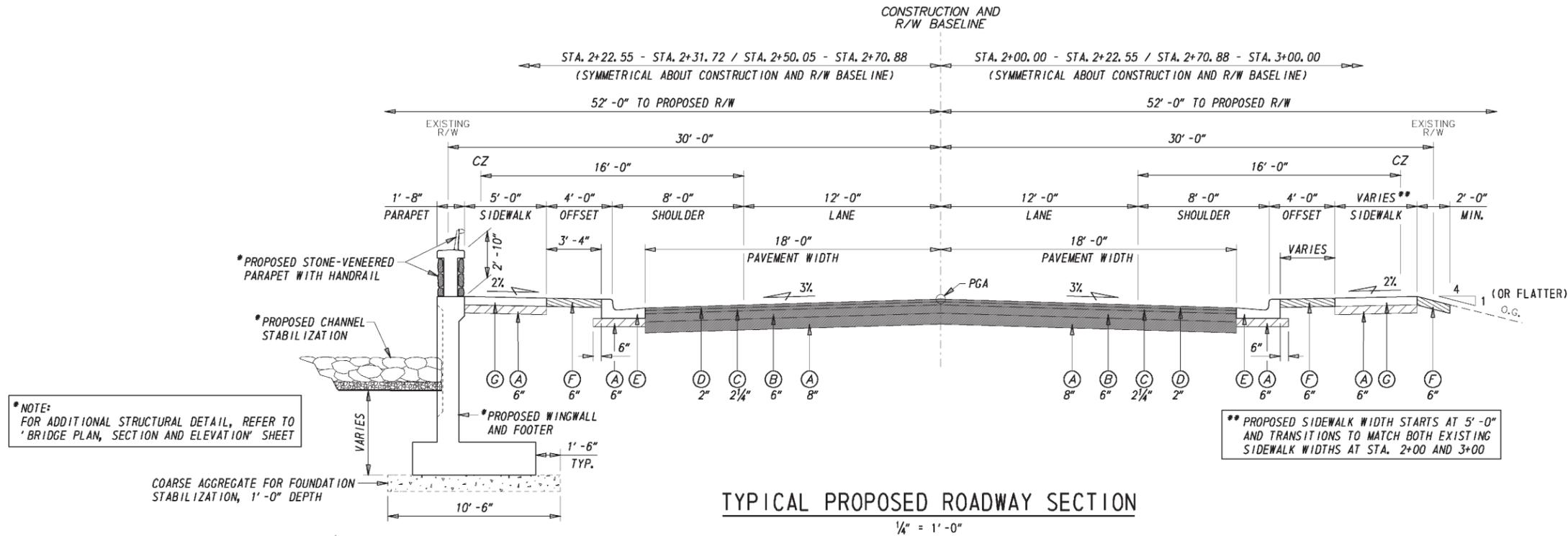
## MISCELLANEOUS

- THE CONTRACTOR SHALL CONTACT MICHAEL ELLER, THE CHIEF OF SCHEDULING FOR DART FIRST STATE, 14 DAYS PRIOR TO THE START OF CONSTRUCTION AT 302-576-6061.
- DESIGN CRITERIA
  - 2010 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 5th EDITION,
  - USING AASHTO HL93 FOR LIVE LOAD, 25 psf FOR FUTURE WEARING SURFACE.
- HYDRAULIC DATA
  - DRAINAGE AREA = 1.75 sq. miles
  - DESIGN FREQUENCY = 50 years
  - DESIGN DISCHARGE = 621 cfs
  - 50 yr FLOOD ELEVATION = 66.24 ft
  - PROPOSED OPENING = 80 SF
- SCOUR ANALYSIS
  - THE PROPOSED STRUCTURE HAS BEEN ANALYZED FOR THE EFFECTS OF SCOUR IN ACCORDANCE WITH HEC-18 - 'EVALUATING SCOUR AT BRIDGES' AND HEC-14 - 'HYDRAULIC DESIGN OF ENERGY DISSIPATORS.' SCOUR COUNTERMEASURES HAVE BEEN DESIGNED FOR THE WORST CASE OF THE OVERTOPPING FLOOD OR THE 500-YR FLOOD EVENT.
  - DESIGN EVENT = OVERTOPPING
  - DESIGN VELOCITY = 9.30 ft/s
  - DESIGN DISCHARGE = 1050 cfs
  - DESIGN DEPTH OF FLOW = 6.26 ft
- ENVIRONMENTAL COMPLIANCE:
  - REFER TO THE ENVIRONMENTAL COMPLIANCE PLAN FOR ANY RESTRICTIONS AND ADDITIONAL GUIDANCE THAT MAY BE ASSOCIATED TO THIS PROJECT.
- THE EXISTING UNDERGROUND UNITED WATER OF DELAWARE WATER MAIN SHALL BE RELOCATED BY UNITED WATER OF DELAWARE PRIOR TO THE START OF THE CONSTRUCTION PHASE OF THIS CONTRACT AND THE EXISTING WATER MAIN LOCATED UNDER THE EXISTING STRUCTURE SHALL BE ABANDONED IN PLACE. DURING THE REMOVAL OF THE EXISTING STRUCTURE AND EXCAVATION FOR THE PROPOSED WINGWALLS, THE CONTRACTOR SHALL REMOVE ANY OF THIS MAIN THAT CONFLICTS WITH THE PROPOSED CONSTRUCTION. ANY OF THE REMAINING ABANDONED MAIN THAT IS LEFT IN PLACE SHALL BE PLUGGED IN ACCORDANCE WITH STANDARD DETAIL 'D-10'. ALL COSTS INCURRED FOR THE REMOVAL AND CAPPING OF THIS MAIN SHALL BE INCIDENTAL TO ITEM 211000 - REMOVAL OF STRUCTURES AND OBSTRUCTIONS AND AS PER ITEM 208001 - FLOWABLE FILL. PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION, THE CONTRACTOR SHALL VERIFY THE COMPLETION OF THE RELOCATION WORK BY CONTACTING JOHN LIGHT, THE PROJECT COORDINATOR FOR UNITED WATER AT PH. 302-252-3036 OR JOHN.LIGHT@UNITEDWATER.COM. REFER TO THE 'UTILITY PLAN' AND THE 'UTILITY STATEMENT' FOR ANY ADDITIONAL GUIDANCE.
- THE EXISTING SHALLOW UNDERGROUND VERIZON CONDUIT SHALL BE RELOCATED BY VERIZON PRIOR TO THE START OF THE CONSTRUCTION PHASE OF THIS CONTRACT. COMPLETION OF THIS RELOCATION SHALL BE VERIFIED PRIOR TO COMMENCEMENT OF THE CONSTRUCTION PHASE OF THIS CONTRACT. REFER TO THE 'UTILITY PLAN' AND THE 'UTILITY STATEMENT' FOR ANY ADDITIONAL GUIDANCE.
- RELOCATION OF AN EXISTING NEW CASTLE COUNTY SEWER MAIN SHALL BE REQUIRED AFTER REMOVAL OF THE EXISTING STRUCTURE AND PRIOR TO PLACEMENT OF THE PROPOSED STRUCTURE. REFER TO THE APPROPRIATE PLAN SHEETS IN THIS CONTRACT FOR ADDITIONAL GUIDANCE AND CLARIFICATION.
- ALL EXISTING OVERHEAD UTILITY LINES SHALL REMAIN IN PLACE FOR THE DURATION OF THIS CONTRACT. REFER TO THE 'UTILITY STATEMENT' FOR ADDITIONAL GUIDANCE.

**DISCLAIMER:**  
IT IS THE DESIGN ENGINEER'S RESPONSIBILITY TO ENSURE THE GENERAL AND PROJECT NOTES ARE MOST CURRENT AS SHOWN IN THE DELDOT'S DESIGN RESOURCE CENTER. FURTHERMORE, LOAD RATINGS WILL NO LONGER BE DONE IN A PROJECT NOTE FORMAT, BUT RATHER IN A TABLE FORMAT.

MATERIAL	LIFT THICKNESS	
	MINIMUM	MAXIMUM
HOT-MIX, TYPE 'C'	1.25"	2"
HOT-MIX, TYPE 'B'	2.25"	3"
BITUMINOUS CONCRETE BASE COURSE	3"	6"
GRADED AGGREGATE BASE COURSE	3"	8"

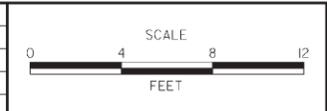
LEGEND	
(A)	ITEM 302007 - GRADED AGGREGATE BASE COURSE, TYPE B
(B)	ITEM 401663 - SUPERPAVE, BITUMINOUS CONCRETE BASE COURSE 160 GYRATIONS, PG 64-22
(C)	ITEM 401654 - SUPERPAVE, TYPE B HOT-MIX, 160 GYRATIONS, PG 70-22
(D)	ITEM 401708 - SUPERPAVE, TYPE C HOT-MIX, 160 GYRATIONS, PG 70-22
(E)	ITEM 701020 - INTEGRAL P.C.C. CURB AND GUTTER, TYPE 1-B
(F)	ITEM 732004 - TOPSOIL (TON) ITEM 734013 - PERMANENT GRASS SEEDING, DRY GROUND
(G)	ITEM 705002 - P.C.C. SIDEWALK, 6" DEPTH



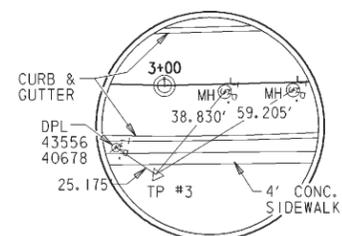
**PAY LIMIT TYPICAL SECTIONS**  
1/4" = 1'-0"

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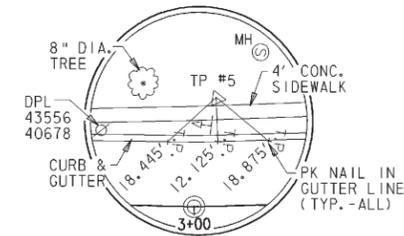
ADDENDUMS / REVISIONS



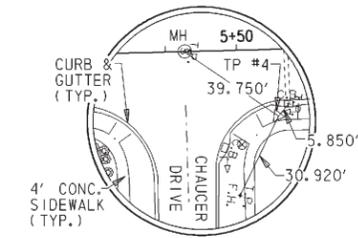
CONTRACT	BRIDGE NO.	<b>1-330</b>
T200707104	DESIGNED BY:	JB
COUNTY	CHECKED BY:	
NEW CASTLE		



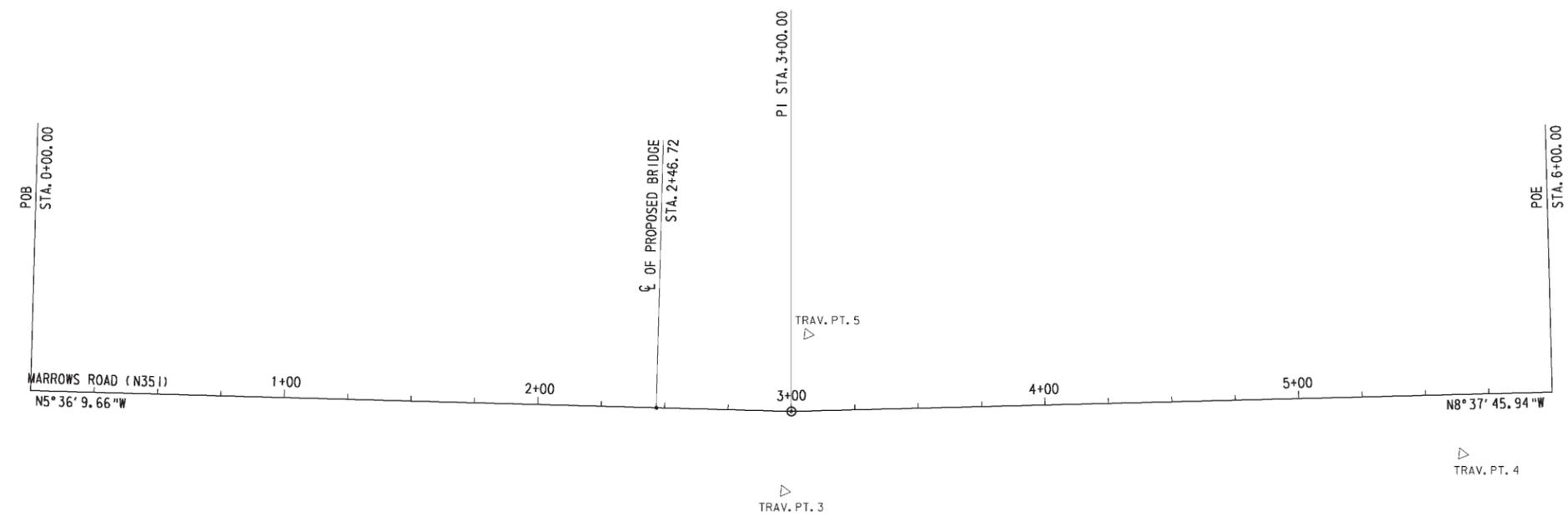
TRAVERSE POINT #3



TRAVERSE POINT #5



TRAVERSE POINT #4

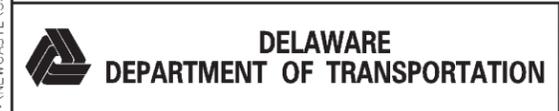


HORIZONTAL / VERTICAL CONTROL DATA					
POINT	STATION	OFFSET	NORTHING	EASTING	ELEVATION
TP-3	2+98.00	31.35	608511.349	568663.368	67.441
TP-4	5+63.97	23.38	608774.747	568615.477	68.061
TP-5	3+07.03	-30.29	608512.890	568600.984	67.061

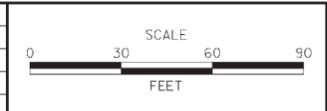
- VERTICAL DATUM BASED ON NATIONAL GEODETIC SURVEY (N. A. V. D. 88)
- HORIZONTAL DATUM BASED ON NATIONAL GEODETIC SURVEY (N. A. V. D. 83)
- NEGATIVE OFFSET DENOTES LEFT OF CENTERLINE

CONSTRUCTION ALIGNMENT CONTROL					
POINT	STATION	OFFSET	NORTHING	EASTING	ELEVATION
POB	0+00.00	0.00	608211.708	568661.259	
STR CL	2+46.72	0.00	608457.251	568637.171	
PI	3+00.00	0.00	608510.275	568631.970	
POE	6+00.00	0.00	608806.879	568586.957	

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ADDENDUMS / REVISIONS	

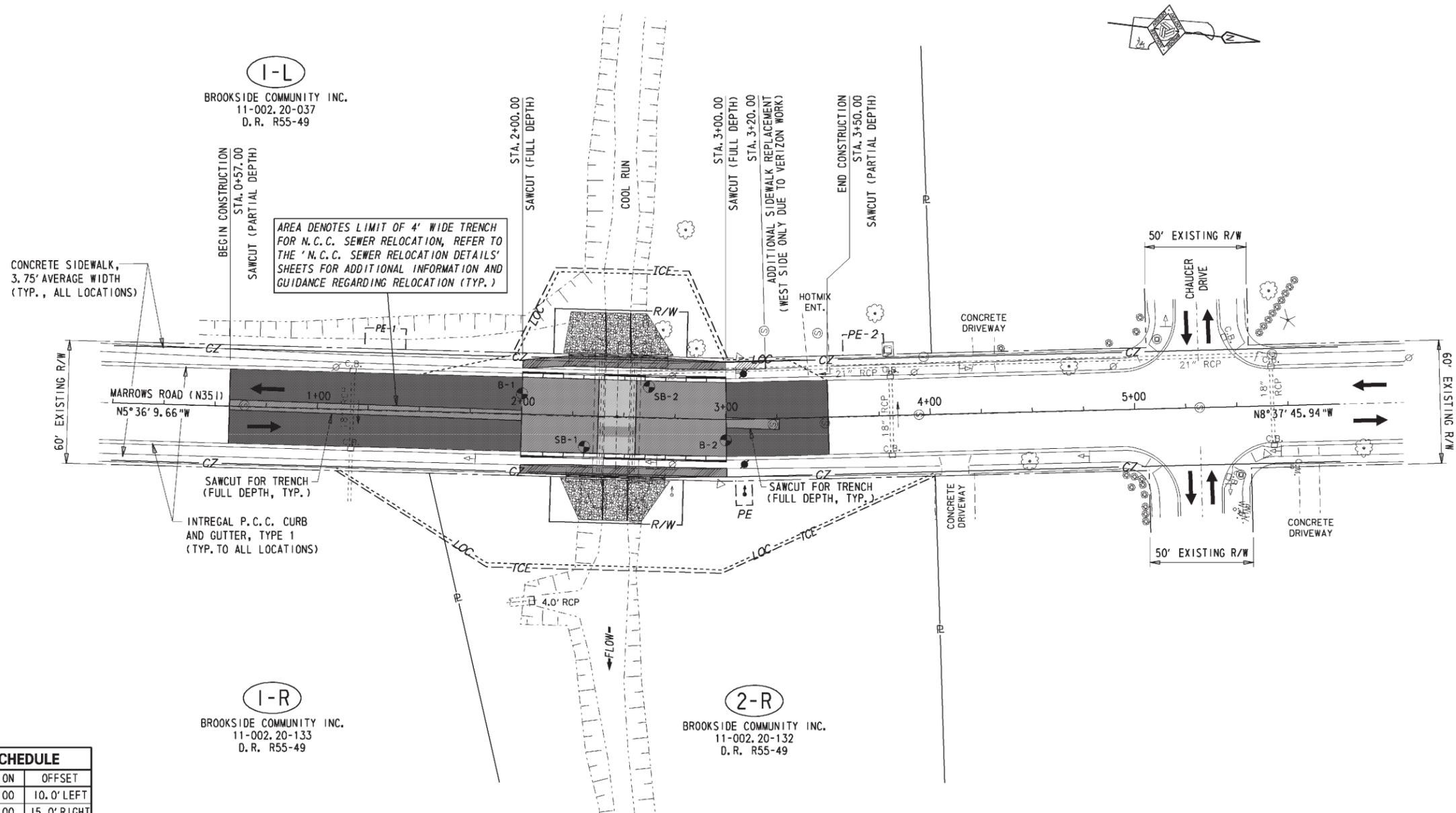


**BRIDGE 1-330 ON N351  
MARROWS ROAD OVER  
COOL RUN**

CONTRACT	BRIDGE NO.	<b>1-330</b>
T200707104	DESIGNED BY:	JB
COUNTY	CHECKED BY:	
NEW CASTLE		

**HORIZONTAL AND  
VERTICAL CONTROL**

SHEET NO.	5
TOTAL SHTS.	24



**1-L**  
 BROOKSIDE COMMUNITY INC.  
 11-002.20-037  
 D.R. R55-49

AREA DENOTES LIMIT OF 4' WIDE TRENCH FOR N.C.C. SEWER RELOCATION, REFER TO THE 'N.C.C. SEWER RELOCATION DETAILS' SHEETS FOR ADDITIONAL INFORMATION AND GUIDANCE REGARDING RELOCATION (TYP.)

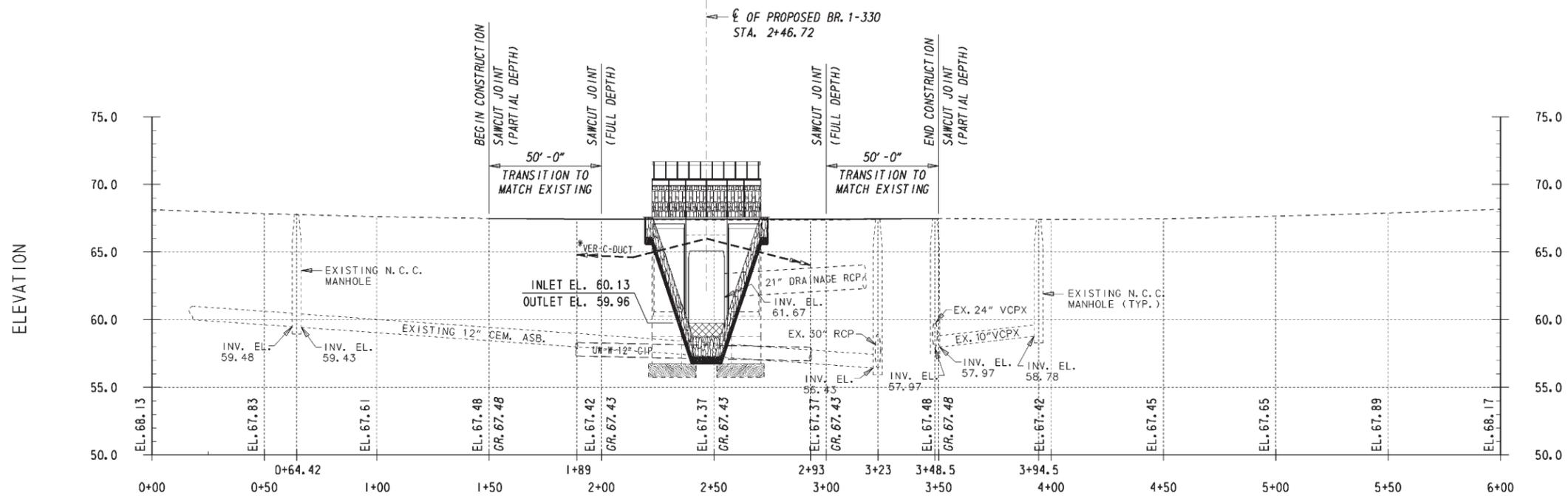
**1-R**  
 BROOKSIDE COMMUNITY INC.  
 11-002.20-133  
 D.R. R55-49

**2-R**  
 BROOKSIDE COMMUNITY INC.  
 11-002.20-132  
 D.R. R55-49

CORE AND BORING SCHEDULE			
NO.	TYPE	STATION	OFFSET
B-1	PAVEMENT	2+00.00	10.0' LEFT
SB-1	STRUCTURAL	2+31.00	15.0' RIGHT
SB-2	STRUCTURAL	2+62.00	15.0' LEFT
B-2	PAVEMENT	3+00.00	10.0' RIGHT

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\* THE EXISTING VERIZON UNDERGROUND CONDUIT LOCATION INDICATED IS BASED ON LIMITED INFORMATION (TEST PITS AT STA. 1+89 AND STA. 2+93) AND DRAPES OVER THE EXISTING STRUCTURE'S PLATE ARCH. THIS CONDUIT SHALL BE RELOCATED BY VERIZON PRIOR TO THE START OF CONSTRUCTION FOR THE STRUCTURE REPLACEMENT. REFER TO THE 'BRIDGE PLAN, SECTION AND ELEVATION' SHEET AND THE 'UTILITY STATEMENT' FOR ADDITIONAL INFORMATION.



**NOTICE:**  
 ALL UTILITIES SHOWN ON THIS SHEET ARE EXISTING. REFER TO THE 'N.C.C. SEWER RELOCATION DETAILS' (3 SHEETS), AND THE 'BRIDGE PLAN, SECTION AND ELEVATION' SHEET IN THESE PLANS, AS WELL AS THE 'UTILITY STATEMENT' FOR ADDITIONAL GUIDANCE AND CLARIFICATION.

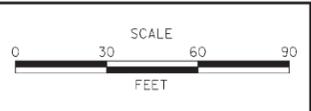
MARROWS ROAD  
 STATION  
 PROFILE

HORIZONTAL: 1" = 30'  
 VERTICAL: 1" = 5'



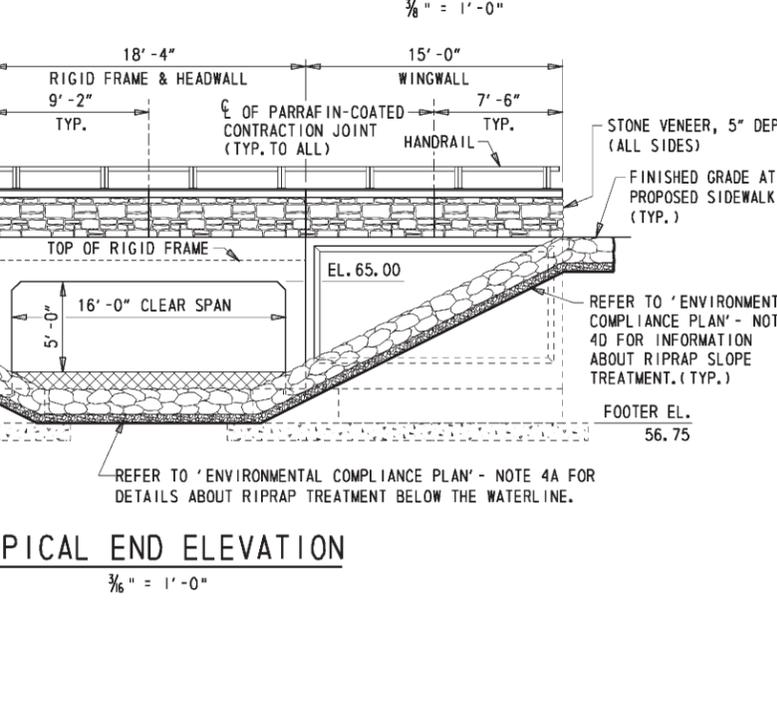
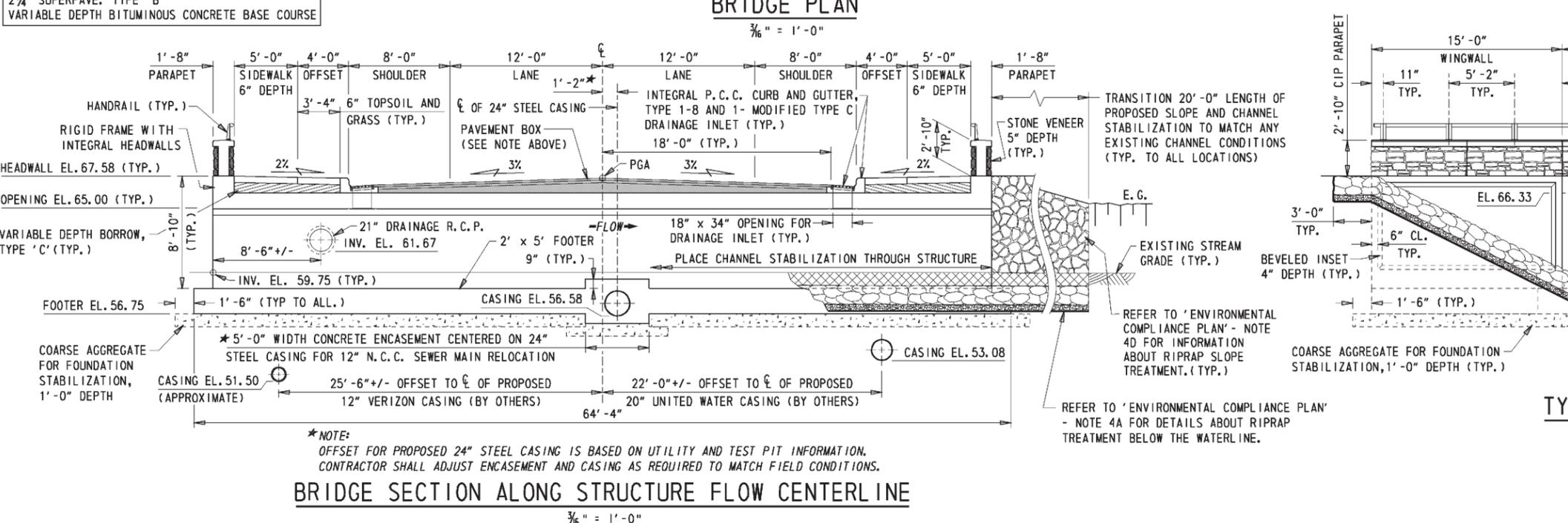
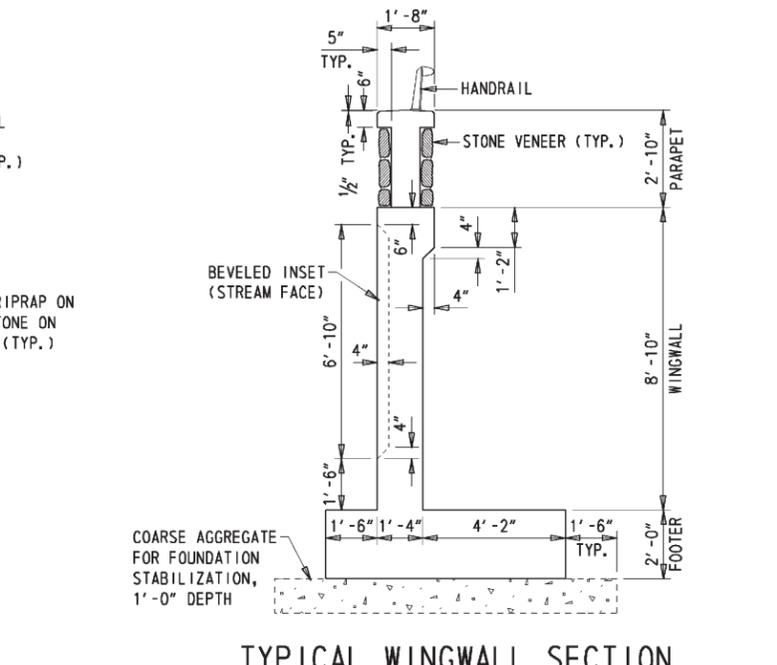
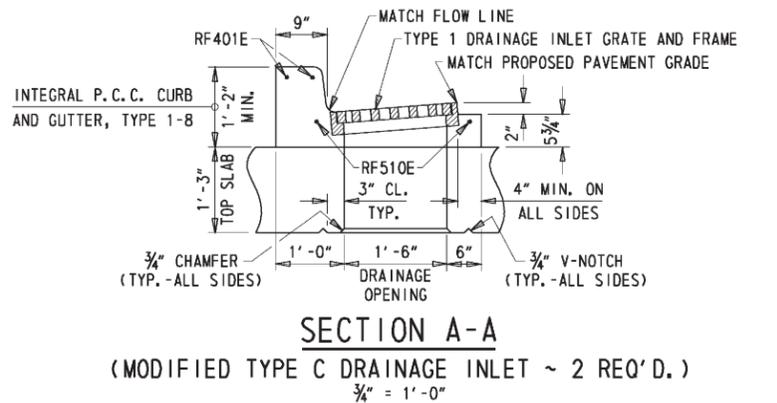
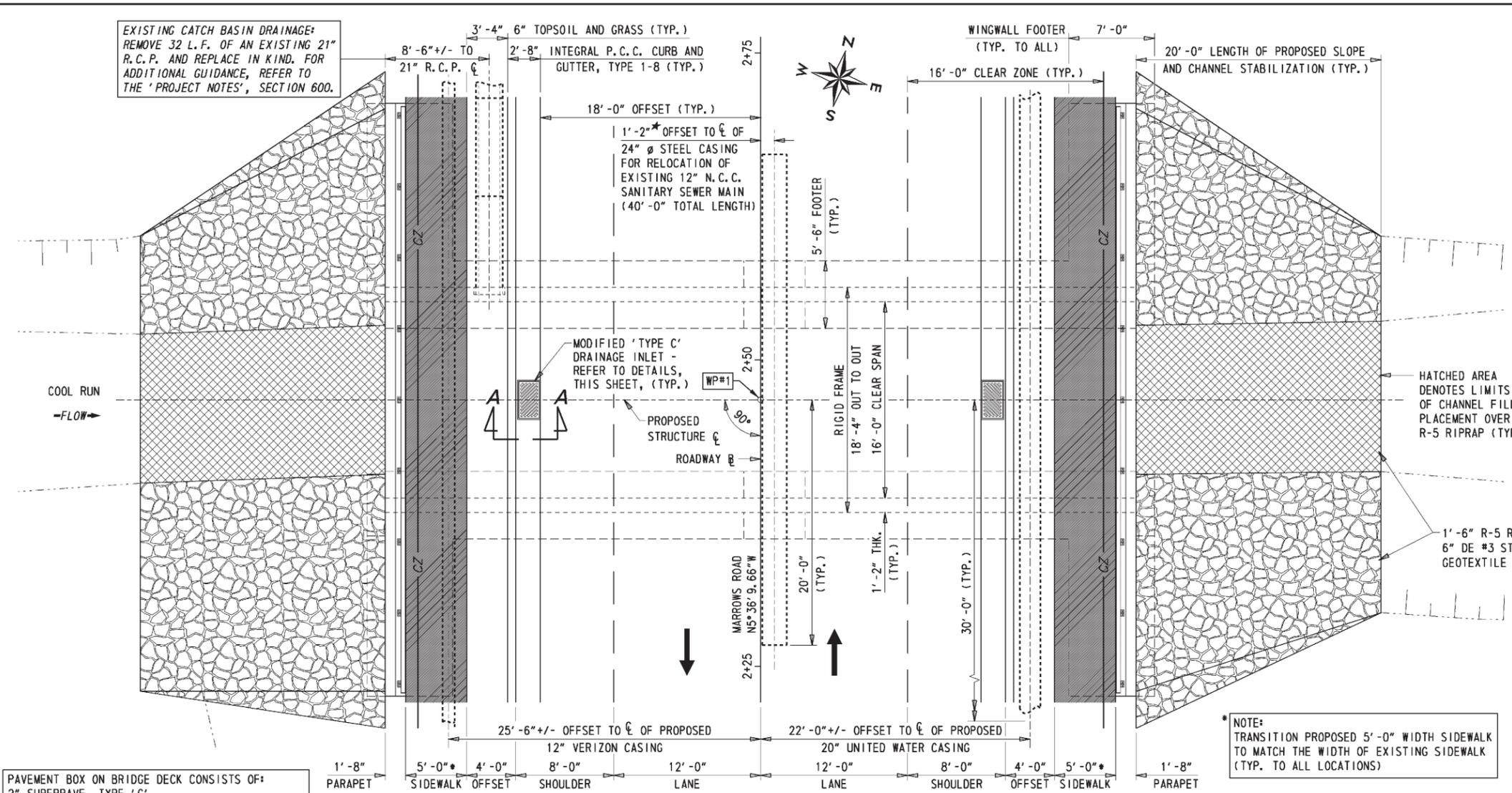
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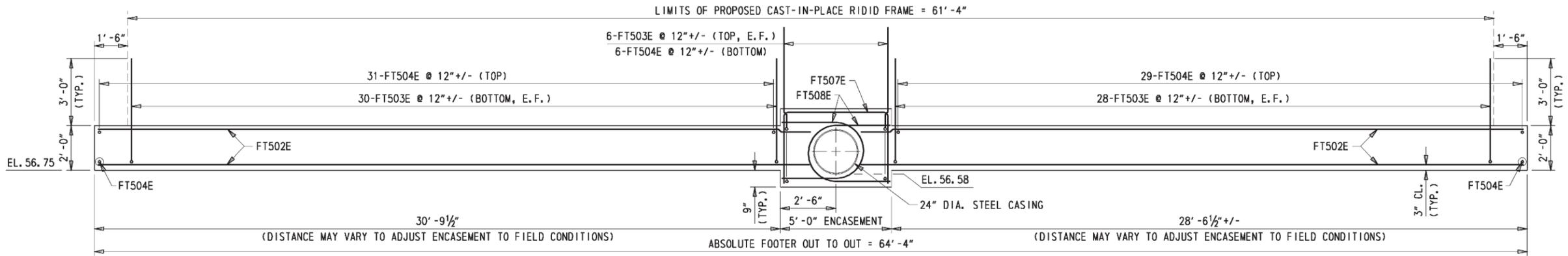
ADDENDUMS / REVISIONS	



CONTRACT T200707104	BRIDGE NO. <b>1-330</b>
COUNTY NEW CASTLE	DESIGNED BY: JB
	CHECKED BY:

EXISTING CATCH BASIN DRAINAGE: REMOVE 32 L.F. OF AN EXISTING 21" R.C.P. AND REPLACE IN KIND. FOR ADDITIONAL GUIDANCE, REFER TO THE 'PROJECT NOTES', SECTION 600.

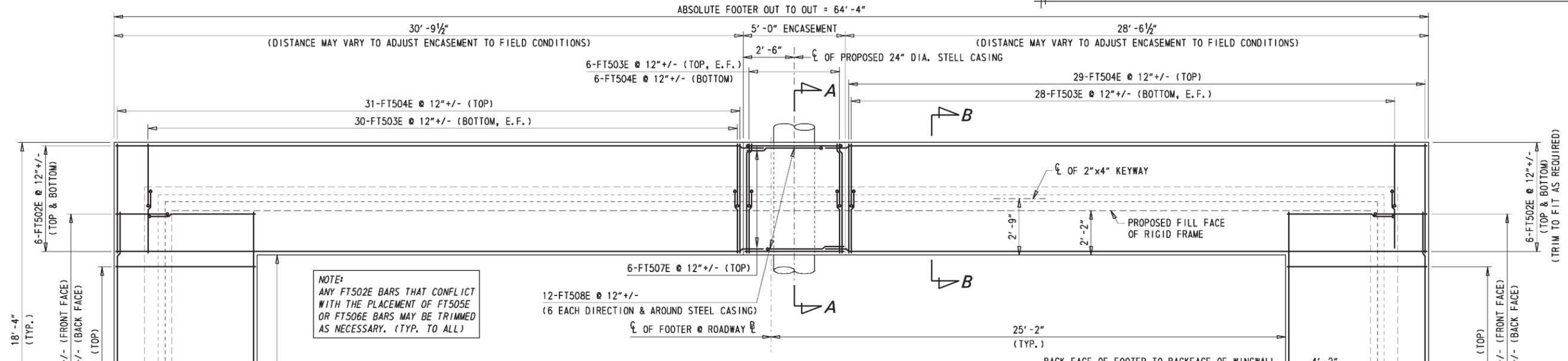




**CAST-IN-PLACE FOOTER ELEVATION**

$\frac{3}{8}'' = 1' - 0''$

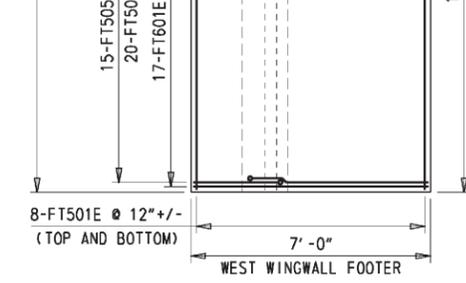
**NOTE:**  
THE PLAN AND ELEVATION SHOWN ARE FOR THE SOUTH FOOTER. THE NORTH FOOTER PLAN AND ELEVATION ARE MIRROR IMAGES OF THESE DETAILS. THE FINAL LOCATION OF THE PROPOSED 24" STEEL CASING FOR THE RELOCATED N.C.C SEWER MAIN SHALL DETERMINE THE FIELD LOCATION OF THE PROPOSED 5'-0" ENCASEMENT IN BOTH FOOTERS.



**CAST-IN-PLACE FOOTER PLAN**

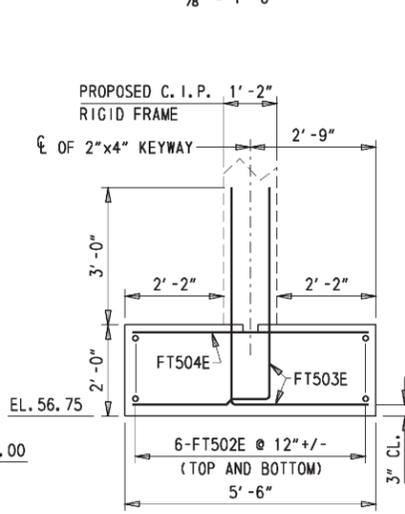
$\frac{3}{8}'' = 1' - 0''$

**NOTE:**  
ANY FT502E BARS THAT CONFLICT WITH THE PLACEMENT OF FT505E OR FT506E BARS MAY BE TRIMMED AS NECESSARY. (TYP. TO ALL)



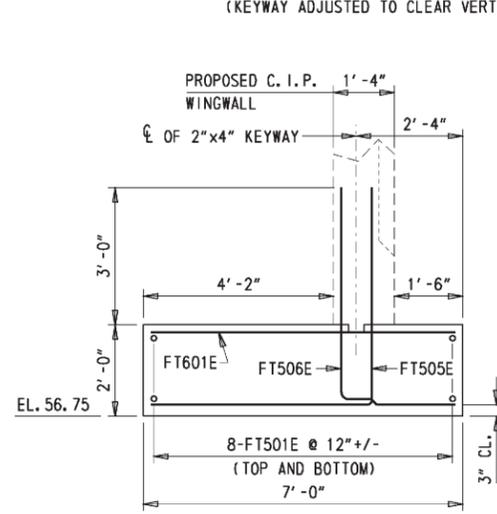
**SECTION A-A**

$\frac{1}{2}'' = 1' - 0''$



**SECTION B-B**

$\frac{1}{2}'' = 1' - 0''$



**SECTION C-C**

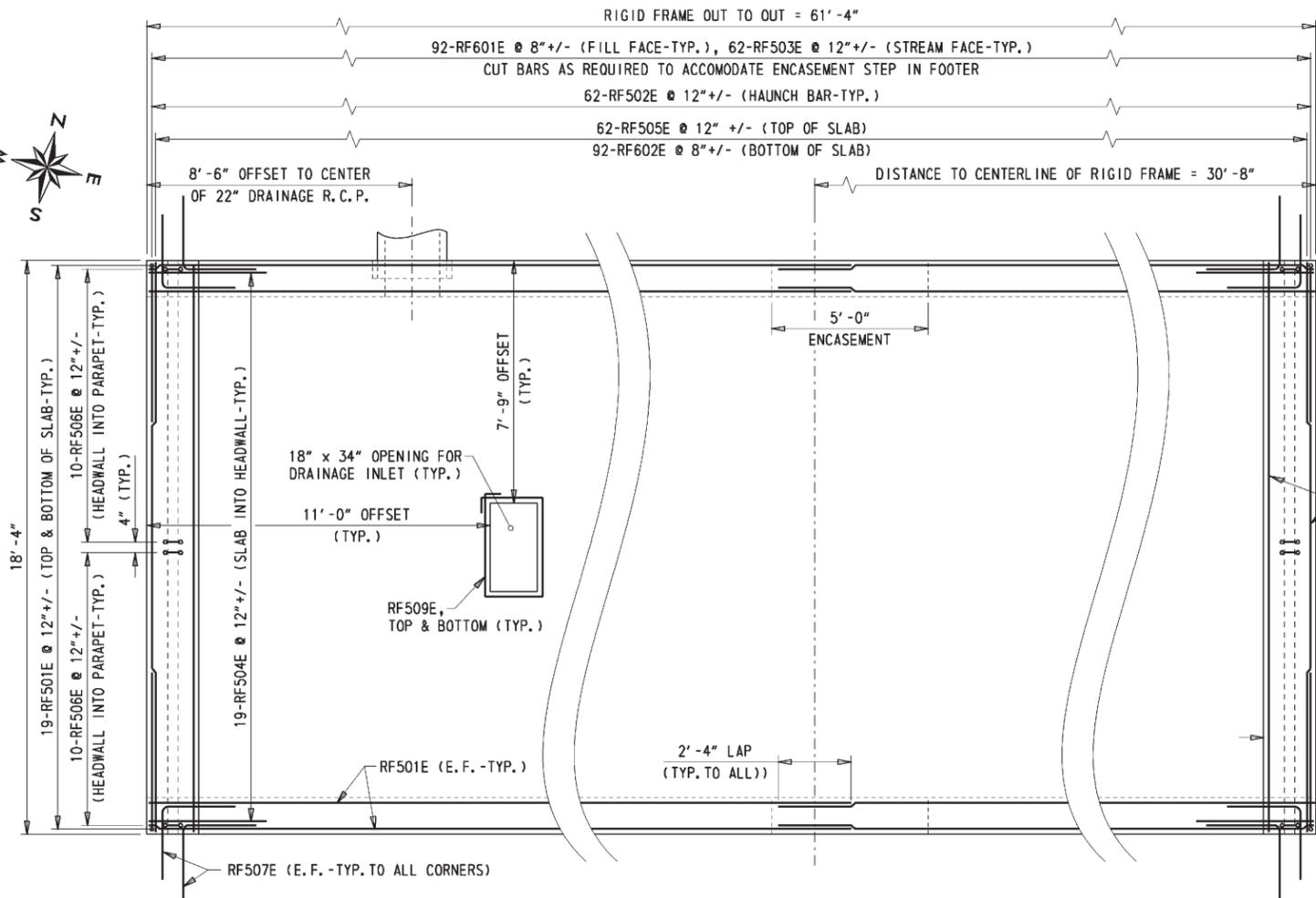
$\frac{1}{2}'' = 1' - 0''$

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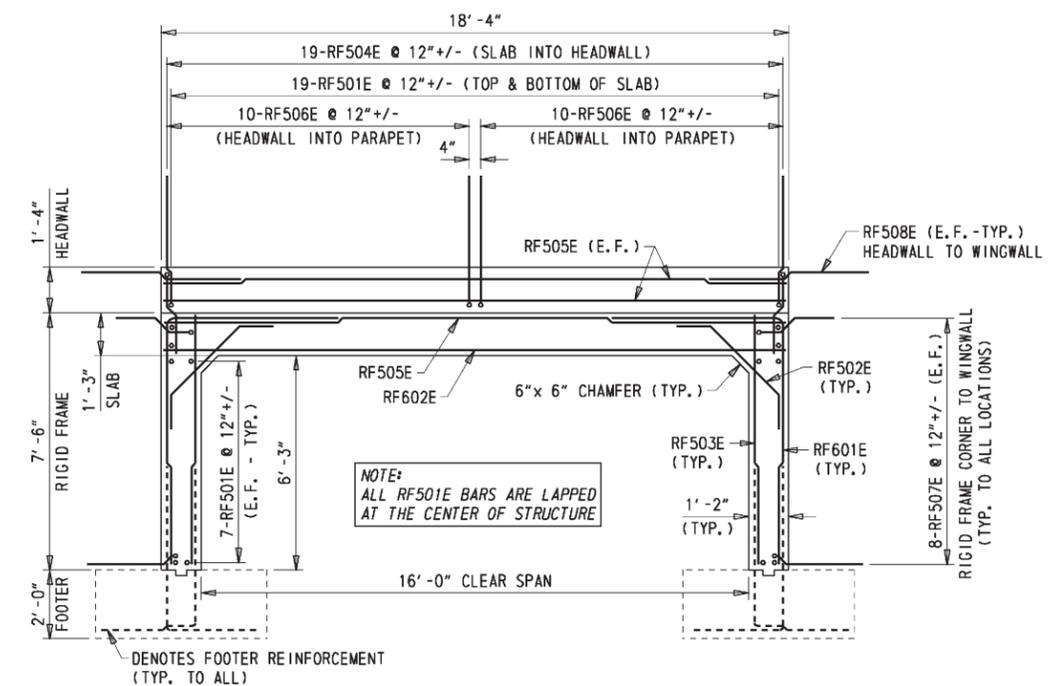
ADDENDUMS / REVISIONS

CONTRACT T200707104	BRIDGE NO. <b>1-330</b>
COUNTY NEW CASTLE	DESIGNED BY:
	CHECKED BY:

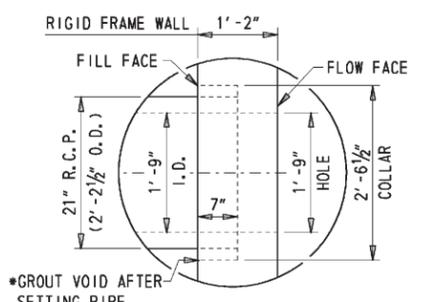
SHEET NO. <b>9</b>
TOTAL SHTS. <b>24</b>



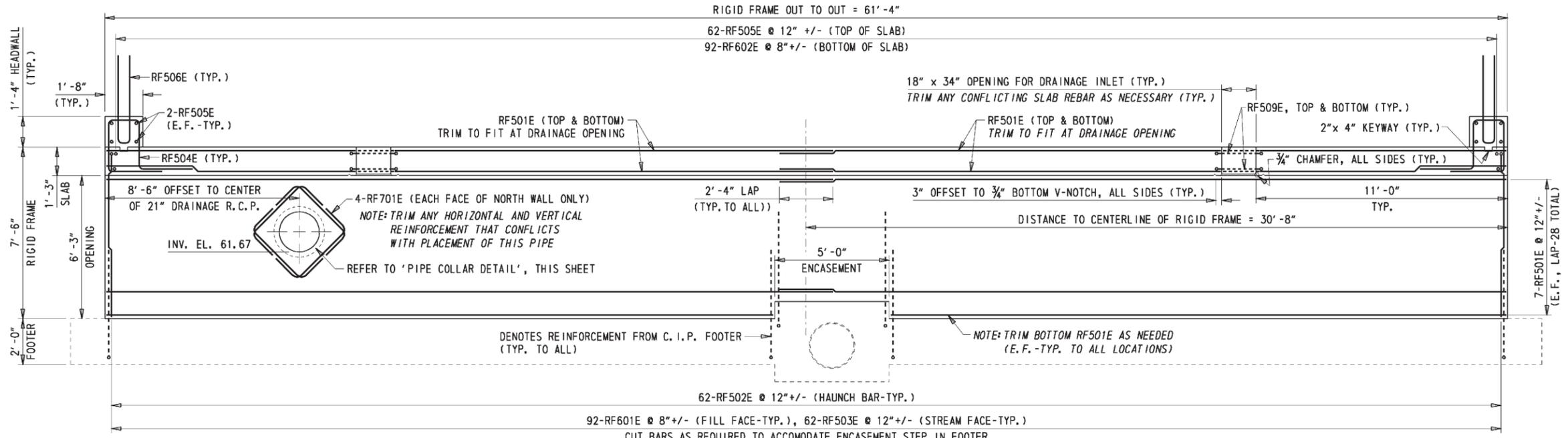
**CAST-IN-PLACE FRAME PLAN**  
 $\frac{3}{8}'' = 1'-0''$



**TYPICAL CAST-IN-PLACE FRAME END ELEVATION**  
 $\frac{3}{8}'' = 1'-0''$



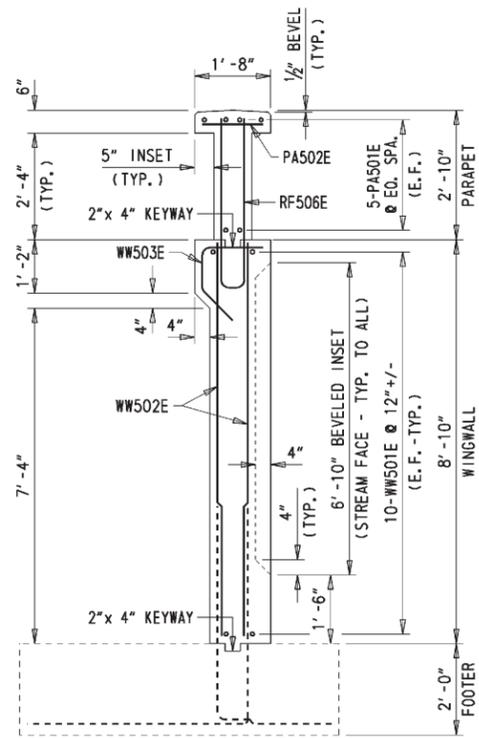
**PIPE COLLAR DETAIL**  
 $\frac{3}{4}'' = 1'-0''$



**CAST-IN-PLACE FRAME ELEVATION**  
 $\frac{3}{8}'' = 1'-0''$

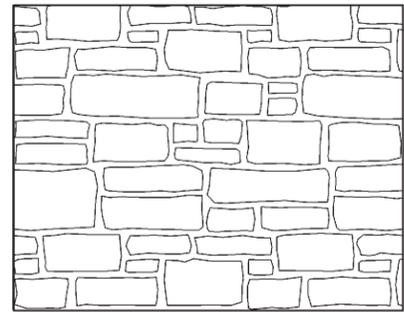
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<p><b>DELAWARE</b> DEPARTMENT OF TRANSPORTATION</p>	ADDENDUMS / REVISIONS		<p><b>BRIDGE 1-330 ON N351</b> <b>MARROWS ROAD OVER</b> <b>COOL RUN</b></p>	CONTRACT	BRIDGE NO.	<b>1-330</b>	<p><b>CAST-IN-PLACE</b> <b>RIGID FRAME DETAILS</b></p>	SHEET NO.
				T200707104	DESIGNED BY:			10
				NEW CASTLE	CHECKED BY:			TOTAL SHTS.
								24



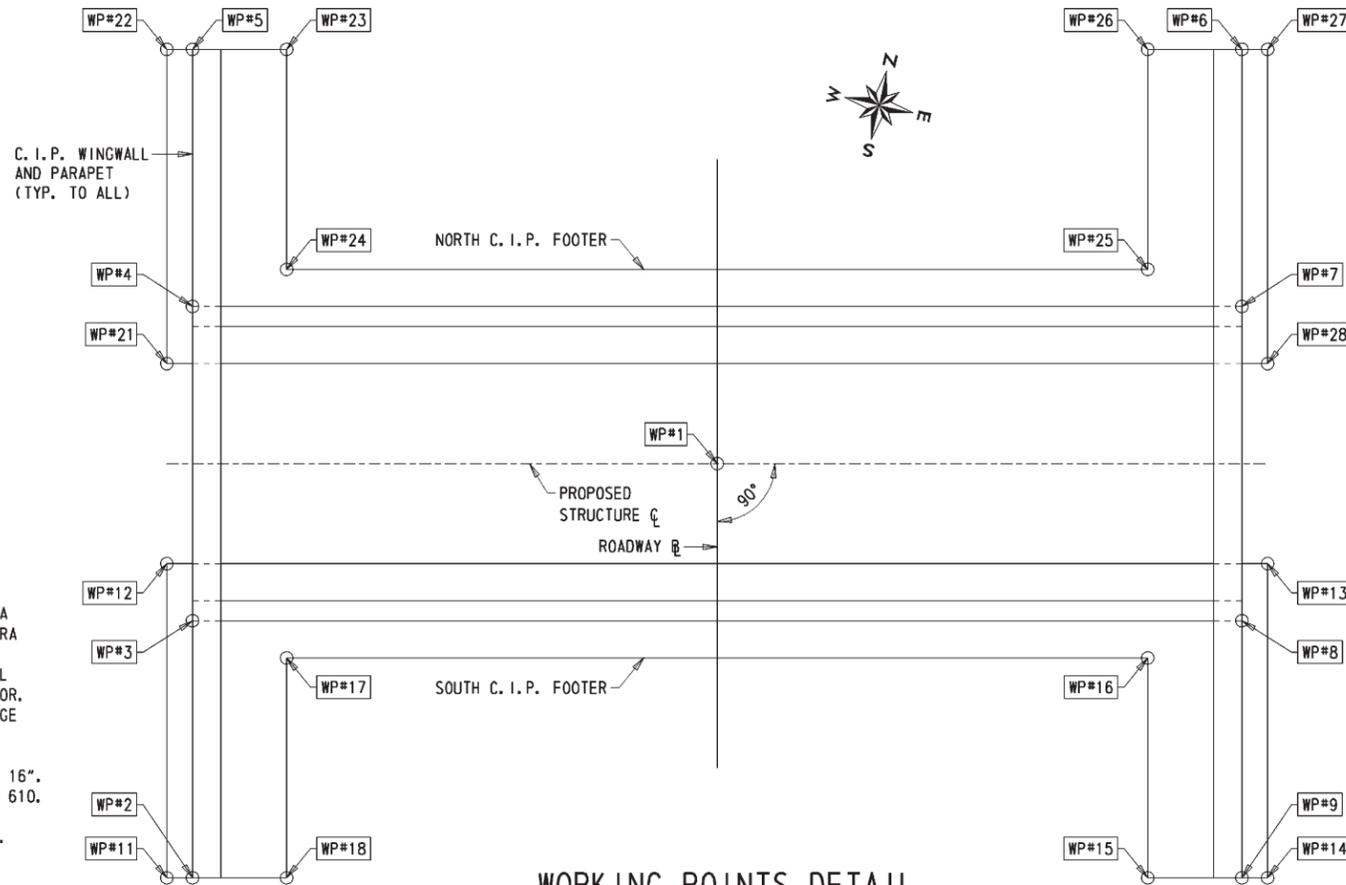
**TYPICAL WINGWALL END ELEVATION**

1/2" = 1'-0"



**STONE VENEER PATTERN**  
(FOR ILLUSTRATIVE PURPOSES ONLY)  
N. T. S.

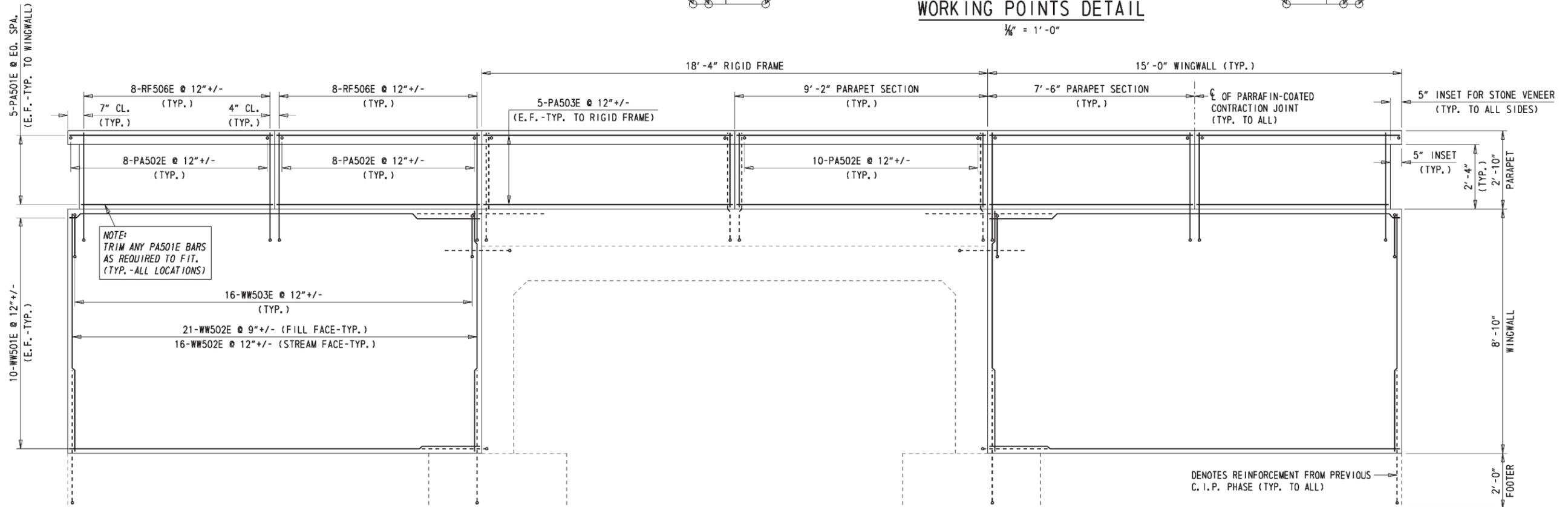
- NOTE:
1. ALL WALL TIES SHALL BE HOT-DIPPED GALVANIZED.
  2. ONE WALL TIE REQUIRED EVERY 1.5 S.F. OF SURFACE AREA AND STAGGERED VERTICALLY AND HORIZONTALLY, WITH EXTRA TIES USED AT ALL CORNERS.
  3. STONE SHALL BE IGNEOUS OR METAMORPHIC ROCK AND SHALL CLOSELY MATCH THE EXISTING STONE IN TEXTURE AND COLOR. APPROVAL OF THE STONE SHALL BE REQUIRED BY THE BRIDGE ENGINEER PRIOR TO PLACEMENT.
  4. STONE FOR VENEER SHALL BE 3" TO 4" THICK WITH WIDTH VARYING FROM 3" TO 8" AND LENGTH VARYING FROM 3" TO 16".
  5. MORTAR SHALL CONFORM TO THE REQUIREMENTS OF SECTION 610.
  6. JOINT THICKNESS SHALL BE FAIRLY UNIFORM AT 1".
  7. PAYMENT SHALL BE AS PER ITEM 610001 - STONE MASONRY.



**WORKING POINTS DETAIL**

1/4" = 1'-0"

WINGWALL WORKING POINTS				
PT.	STATION	OFFSET	NORTHING	EASTING
1	2+46.47	0.00	608457.25	568637.17
2	2+22.55	-30.67	608430.21	568609.01
3	2+37.55	-30.67	608445.13	568607.55
4	2+55.89	-30.67	608463.38	568605.76
5	2+70.89	-30.67	608478.31	568604.29
6	2+70.89	30.67	608484.30	568665.33
7	2+55.89	30.67	608469.37	568666.80
8	2+37.56	30.67	608451.12	568668.59
9	2+22.56	30.67	608436.19	568670.05
11	2+22.55	-32.17	608430.06	568607.52
12	2+40.89	-32.17	608448.31	568605.73
13	2+40.89	32.17	608454.59	568669.75
14	2+22.56	32.17	608436.34	568671.54
15	2+22.56	25.17	608435.66	568664.58
16	2+35.39	25.17	608448.43	568663.32
17	2+35.39	-25.17	608443.51	568613.23
18	2+22.55	-25.17	608430.74	568614.48
21	2+52.55	-32.17	608459.92	568604.59
22	2+70.89	-32.17	608478.16	568602.80
23	2+70.89	-25.17	608478.85	568609.77
24	2+58.05	-25.17	608466.07	568611.02
25	2+58.06	25.17	608470.99	568661.11
26	2+70.89	25.17	608483.76	568659.86
27	2+70.89	32.17	608484.44	568666.83
28	2+52.56	32.17	608466.20	568668.62

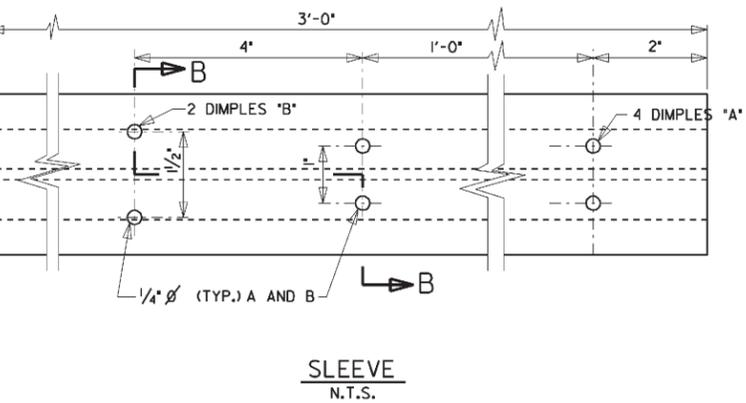
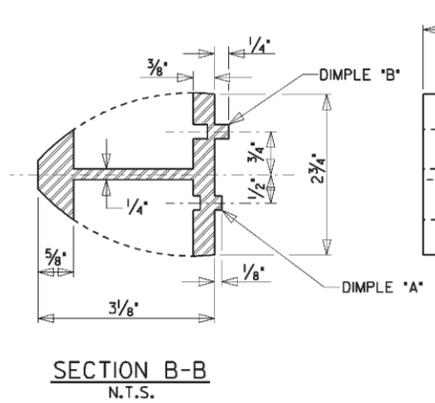
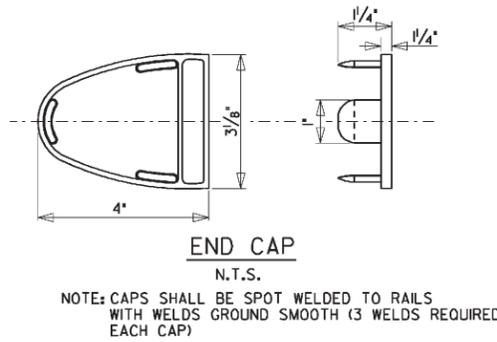
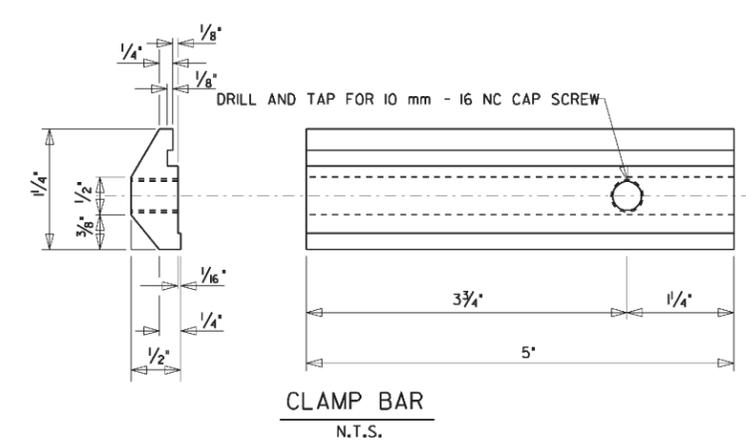
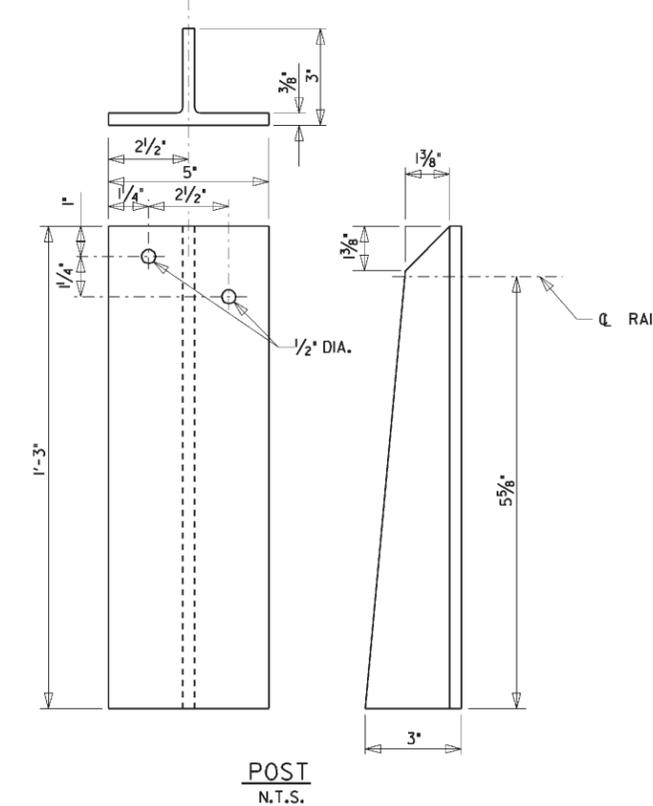
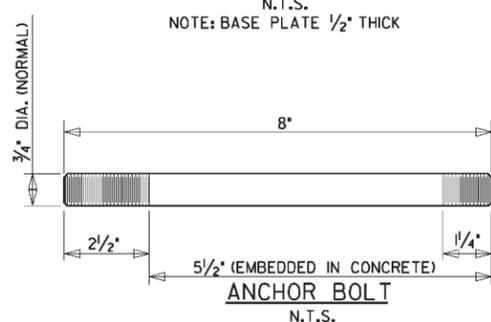
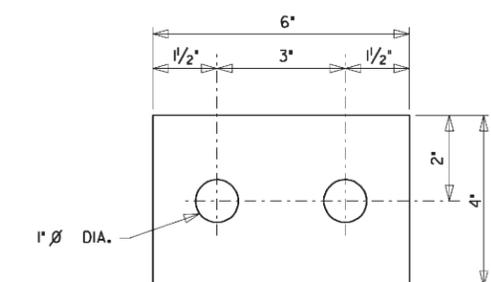
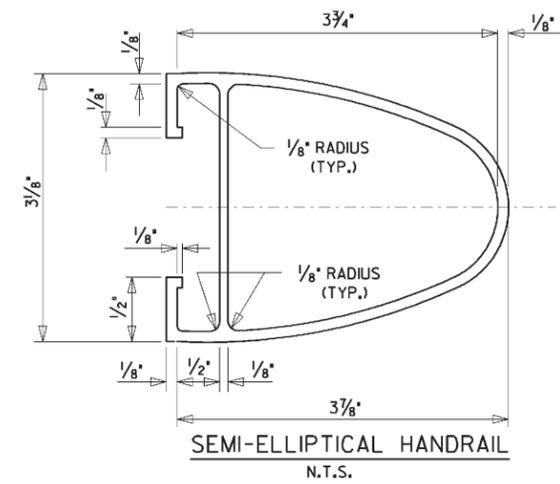
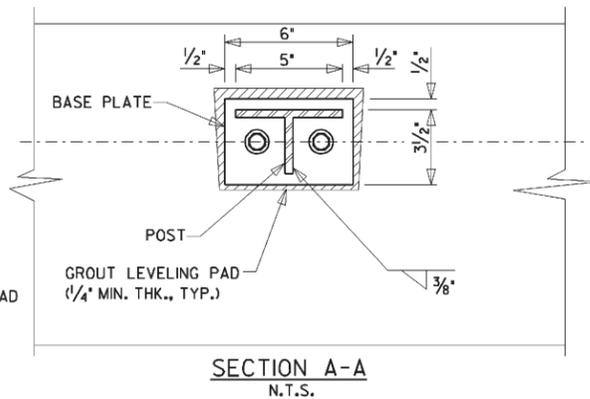
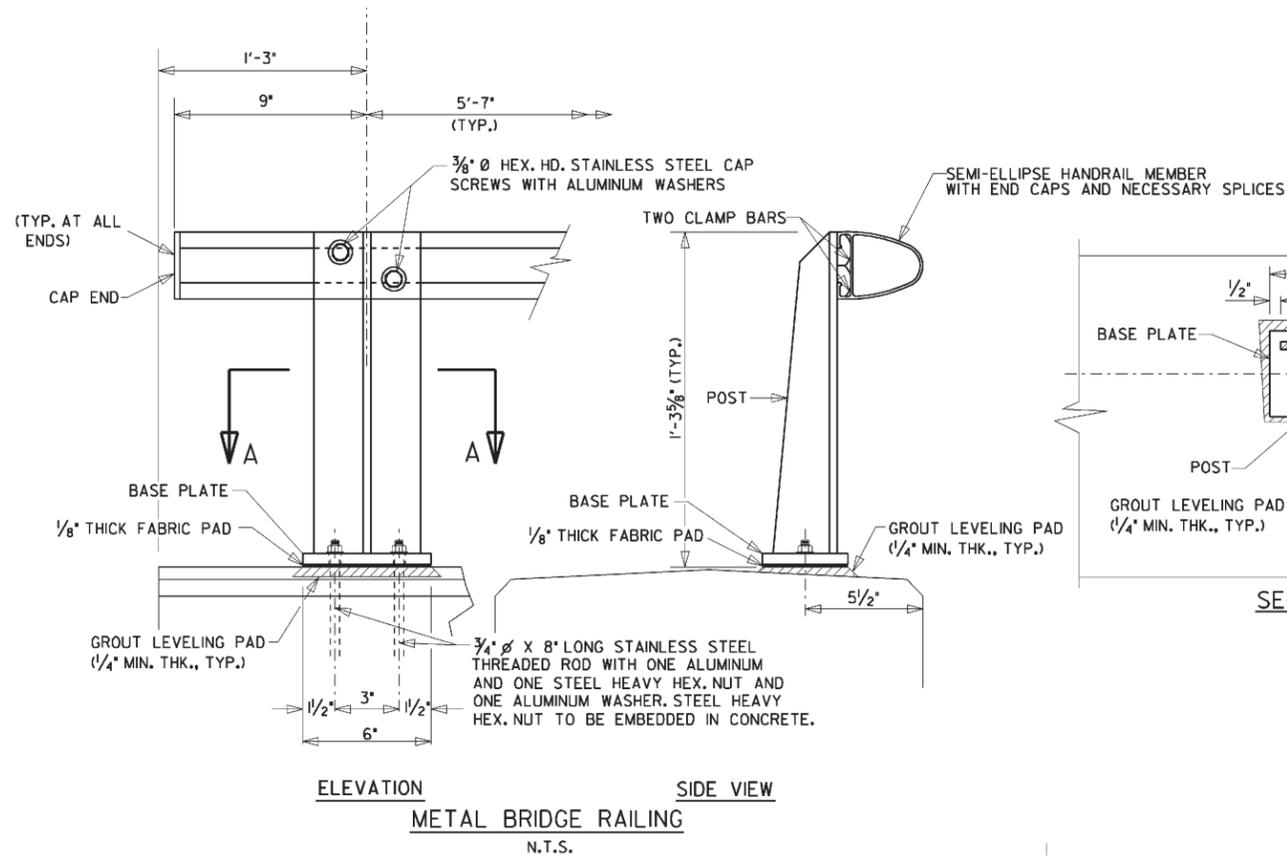


**TYPICAL END ELEVATION**

(SHOWING WINGWALL AND PARAPET REINFORCEMENT)

1/2" = 1'-0"

ADDENDUMS / REVISIONS



- GENERAL NOTES**
1. ALUMINUM HANDRAIL ASSEMBLY IS MAGNODE PRODUCTS, INC. OF TRENTON, OHIO OR APPROVED EQUAL.
  2. POSTS SHALL BE SET PERPENDICULAR TO GRADE.
  3. POSTS MAY BE MOVED 6" OR LESS TO CLEAR EXPANSION AND DEFLECTION JOINTS.
  4. RAILS SHALL BE CONTINUOUS FROM END TO END OF BRIDGE WITH SPLICES WHERE RAIL SECTIONS CROSS EXPANSION JOINTS.
  5. THE CENTERLINE OF ANY SPLICE SHALL BE LOCATED AT LEAST 2'-0" AWAY FROM CENTERLINE OF A POST.
  6. BOTTOM OF POST BASES SHALL BE THOROUGHLY COATED WITH AN APPROVED CAULKING COMPOUND OR AN APPROVED ZINC CHROMATE PAINT.
  7. DESIGN - IN ACCORDANCE WITH CURRENT A.A.S.H.T.O. SPECIFICATIONS.

- MATERIAL NOTES**
- ALUMINUM RAILS
1. POSTS, BASE PLATES, SLEEVES AND CLAMP BARS. A.S.T.M. B-221 ALLOY 6061-T6.
  2. ALUMINUM WASHERS. A.S.T.M. B-209 ALLOY ALCLAD 2024-T3.
  3. STAINLESS STEEL CAP SCREWS. A.S.T.M. A-193, GRADE B-8.
  4. END PLUGS. A.S.T.M. B-26, B-108, ALLOY A-356-F.
  5. ANCHOR STUDS. A.S.T.M. A-276 TYPE 430 (THREADS TO BE ROLLED NOT CUT).
  6. ALUMINUM NUTS. A.S.T.M. B-221, ALUMINUM ALLOY 6061-T6.
  7. RAILS. A.S.T.M. B-221, ALLOY 6061-T6 OR 6351-T5.
  8. STEEL NUTS. A.S.T.M. A-307, STEEL.



BORING: SB-1		DATE DRILLED: 3/6/2007							
STATION: 2+31.00		OFFSET: 15.0' RIGHT		ELEVATION:		NORTHING: 608443.0690		EASTING: 568653.6345	
COMMENTS:									
DEPTH (FT.)	NO.	SAMPLE DEPTH	Blows/6"	SAMPLE DESCRIPTION	CLASS./G.I.	REMARKS			
	1			No Sample Recovery					
3.05	2	2.0'	13	Wet dense brown coarse to fine sand w/ some gravel and clay.	A-1-b				
		4.0'	14	22" RECOVERY					
6.1	3	4.0'	3	Saturated loose gray organic silty fine sand w/some coarse sand, trace of gravel.	A-2-4(0)				
		6.0'	5	20" RECOVERY					
	4	6.0'	6	Saturated medium dense red silty fine to coarse sand w/some gravel.	A-2-4(0)				
		8.0'	4	17" RECOVERY					
9.15	5	8.0'	5	Saturated stiff grayish red silty clay w/some fine sand, trace of coarse sand.	A-6(14)				
		10.0'	9	20" RECOVERY					
	6	10.0'	11	Saturated medium dense reddish gray silty coarse to fine sand.	A-2-4(0)				
		12.0'	8	18" RECOVERY					
12.2	7	12.0'	4	No Sieve Analysis					
		14.0'	6	3" RECOVERY					
15.25	U-1	14.0'		Saturated reddish gray fine sandy clay w/trace of coarse sand.	A-6(4)	Press Sample - Shelby Tube			
		16.0'	6	23" RECOVERY					
	8	16.0'	8	Saturated very stiff grayish red silty fine sandy clay w/some coarse sand, trace of organic matter.	A-6(8)				
18.3		18.0'	16	24" RECOVERY					
	9	18.0'	4	Saturated very stiff reddish gray clay w/some fine sand, trace of coarse sand.	A-7-6(19)				
		20.0'	12	22" RECOVERY					
21.35									
	10	23.0'	4	Saturated very stiff red clay w/some fine sand, trace of coarse sand and organic matter.	A-6(13)				
24.4		25.0'	11	24" RECOVERY					
27.45									
	11	28.0'	11	Saturated very stiff red silty fine sandy clay w/trace of coarse sand and organic matter.	A-6(4)				
30.5		30.0'	17	24" RECOVERY					
33.55									
36.6									
39.65									
42.7									
45.75									
48.8									

BORING: SB-2		DATE DRILLED: 3/6/2007							
STATION: 2+62.00		OFFSET: 15.0' LEFT		ELEVATION:		NORTHING: 608470.9921		EASTING: 568620.7513	
COMMENTS:									
DEPTH (FT.)	NO.	SAMPLE DEPTH	Blows/6"	SAMPLE DESCRIPTION	CLASS./G.I.	REMARKS			
	1	1.0'	2	Saturated very stiff brown coarse to fine sandy silt w/some clay, trace of gravel.	A-4(1)				
3.05	2	2.0'	9	No Sieve Analysis					
		3.0'	6	10" RECOVERY					
		4.0'	7	3" RECOVERY					
6.1	3	4.0'	3	Saturated loose brown gravelly coarse sand w/some fine sand and clay.	A-2-4(0)				
		6.0'	3	17" RECOVERY					
	4	6.0'	3	Saturated loose brown gravelly coarse sand w/some fine sand and clay.	A-2-4(0)				
		8.0'	4	14" RECOVERY					
9.15	5	8.0'	1	Saturated soft brown silty clay w/some fine to coarse sand and gravel.	A-6(1)				
		10.0'	2	8" RECOVERY					
	6	10.0'	6	Saturated stiff grayish brown fine sandy silt w/some clay, trace of coarse sand.	A-4(0)				
12.2		12.0'	10	18" RECOVERY					
	7	12.0'	7	No Sample Recovery					
		14.0'	12	0" RECOVERY					
15.25	8	14.0'	4	Saturated stiff brown silty clay w/some fine sand, trace of coarse sand and gravel.	A-6(5)				
		16.0'	7	15" RECOVERY					
	9	16.0'	6	Saturated very stiff multicolored fine sandy clay w/some coarse sand.	A-7-6(13)				
18.3		18.0'	14	23" RECOVERY					
	10	18.0'	2	Saturated stiff multicolored fine sandy clay w/trace of coarse sand.	A-7-6(14)				
		20.0'	9	14" RECOVERY					
21.35									
24.4	11	24.0'	5	Saturated stiff multicolored clayey fine sandy silt w/some coarse sand.	A-4(1)				
		26.0'	12	22" RECOVERY					
27.45	U-1	26.0'		Saturated gray clayey fine sandy silt w/ some coarse sand, trace of organic matter.	A-4(0)	Press Sample - Shelby Tube			
		28.0'	5	24" RECOVERY					
	12	28.0'	5	Saturated medium dense gray coarse to fine sand w/some gravel and silt.	A-1-b				
30.5		30.0'	7	22" RECOVERY					
33.55									
36.6									
39.65									
42.7									
45.75									
48.8									

NOTE: BORINGS ARE FOR INFORMATIONAL PURPOSES ONLY.

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ADDENDUMS / REVISIONS

**BRIDGE 1-330 ON N351  
MARROWS ROAD OVER  
COOL RUN**

CONTRACT	BRIDGE NO.	<b>1-330</b>
T200707104	DESIGNED BY:	
COUNTY	CHECKED BY:	
NEW CASTLE		

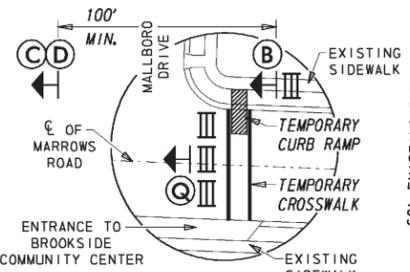
**BORING LOGS**

SHEET NO.	14
TOTAL SHTS.	24

# SEQUENCE OF CONSTRUCTION

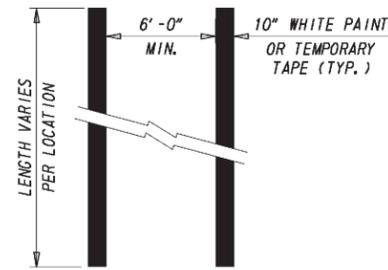
- CLOSE MARROWS ROAD IN ACCORDANCE WITH THE DETOUR PLAN.
- DEFINE L.O.C. PERIMETER AND INSTALL SILT FENCE (ITEM 251000).
- CONSTRUCT A TEMPORARY PEDESTRIAN BRIDGE WITH A MINIMUM 5 FOOT CLEAR DECK WIDTH ON THE EAST SIDE OF THE EXISTING STRUCTURE AT THE LOCATION SHOWN. THE PEDESTRIAN BRIDGE SHALL BE OF THE CONTRACTOR'S DESIGN AND SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS, WITH REVIEW AND ACCEPTANCE BY DELDOT PRIOR TO ITS PLACEMENT. ALL MATERIALS AND LABOR RELATED TO THE FOOTBRIDGE INCLUDING PLACEMENT REMOVAL SHALL BE AS PER ITEM 763682 - TEMPORARY PEDESTRIAN BRIDGE. AFTER THE PEDESTRIAN BRIDGE IS SET, A 5 FOOT WIDE TEMPORARY PEDESTRIAN PATHWAY SHALL BE PLACED AT BOTH APPROACHES AND SHALL TIE IN WITH THE EXISTING SIDEWALK AS SHOWN ON THE PLANS. THE PATHWAYS SHALL MATCH THE GRADE AT THE SIDEWALK AND PROVIDE SMOOTH TRANSITIONS TO THE PEDESTRIAN BRIDGE AT A MAXIMUM 12:1 GRADE. ALL MATERIALS AND LABOR RELATED TO THE PEDESTRIAN PATHWAYS, INCLUDING PLACEMENT, REMOVAL AND RESTORING ALL DISTURBED AREAS, SHALL BE AS PER ITEM 743553 - TEMPORARY PEDESTRIAN PATHWAY. PEDESTRIAN CHANNELIZING BARRICADE SHALL BE PLACED ALONG BOTH SIDES OF THE ENTIRE TEMPORARY PEDESTRIAN PATHWAY WITH PLACEMENT, MAINTENANCE AND REMOVAL AS PER ITEM 743552 - PEDESTRIAN CHANNELIZING BARRICADE. EXISTING SIDEWALK CLOSURES SHALL BE UTILIZED WEST OF STATIONS 5+00 SOUTH TO THE INTERSECTION WITH MALLBORO DRIVE AND EAST OF STATIONS 1+40 TO 3+60. PLACEMENT OF CONSTRUCTION SAFETY FENCE SHALL BE UTILIZED ON THE EAST SIDE BETWEEN STATIONS 0+15 AND 1+40 AND BETWEEN STATIONS 3+60 AND 5+00, AS INDICATED ON THE PLAN. A TEMPORARY PEDESTRIAN CROSSING SHALL BE PROVIDED AT THE INTERSECTION OF MALLBORO DRIVE AND AT STATION 5+00 AT THE CHAUCER DRIVE INTERSECTION, WITH BOTH BEING HANDICAP ACCESSIBLE, WITH A TEMPORARY CURB RAMP (ITEM 705528) REQUIRED AT THE NORTHWEST CORNER OF THE MALLBORO DRIVE INTERSECTION. ALL WORK ASSOCIATED WITH THE SIDEWALK CLOSURES AND CROSSINGS SHALL BE AS PER DETAILS ON THIS SHEET AND IN ACCORDANCE WITH 'CASE 17' OF THE DELDOT MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES WITH PAYMENT BEING AS PER ITEM 763643 - MAINTENANCE OF TRAFFIC, ALL INCLUSIVE.

- PLACE A 4.0' DIAMETER FLEXIBLE DRAINAGE PIPE THROUGH THE STRUCTURE AND CONSTRUCT SANDBAG DIKES, A MINIMUM OF 4.5 FEET HIGH TO ENCLOSE IT, UPSTREAM AND DOWNSTREAM OF THE STRUCTURE AS SPECIFIED IN THE PLANS. THE PIPE SHALL HAVE WATERTIGHT JOINTS TO PREVENT LEAKAGE INTO THE WORK AREA AND SHALL BE SECURELY STABILIZED TO PREVENT MOVEMENT UNDER USE. THE STREAM DIVERSION SHALL BE INSTALLED AS PER ITEM 265500 - STREAM DIVERSIONS. CONNECT THE SILT FENCE TO THE SANDBAG DIKES TO COMPLETELY ENCLOSE THE WORK AREA. PLACE A STABILIZED 8' (FLOW DISCHARGE) LENGTH x 6' WIDTH OUTFALL CONSISTING OF R-5 RIPRAP AND GEOTEXTILE AT THE PIPE OUTFALL, AS NOTED ON THE PLANS. PAYMENT FOR THE STABILIZED OUTFALL SHALL BE UNDER THE APPROPRIATE ITEMS.



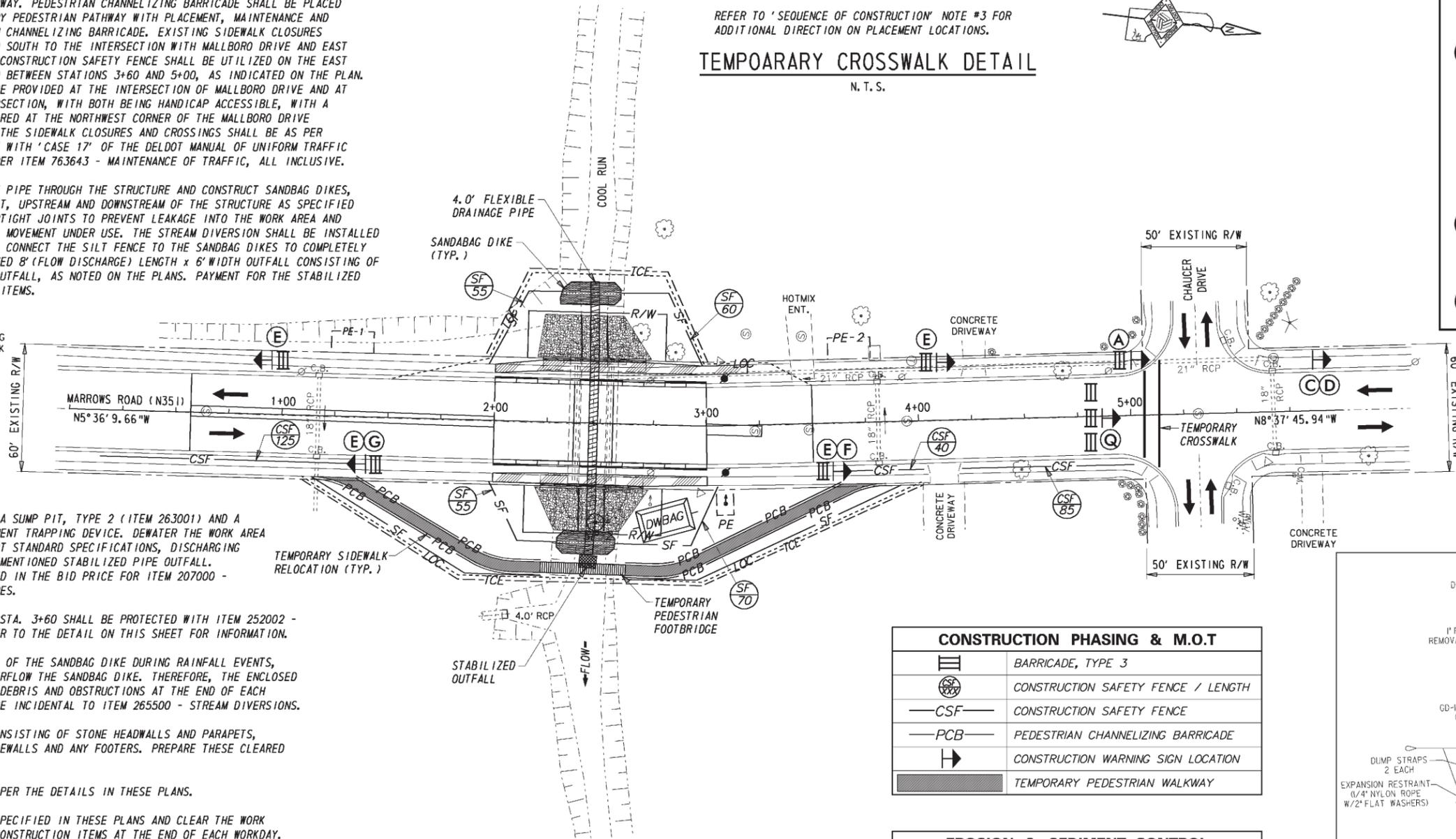
- AFTER ENCLOSING THE WORK AREA, INSTALL A SUMP PIT, TYPE 2 (ITEM 263001) AND A DEWATERING BAG (ITEM 270500) AS A SEDIMENT TRAPPING DEVICE. DEWATER THE WORK AREA IN ACCORDANCE WITH SECTION 111 OF DELDOT STANDARD SPECIFICATIONS, DISCHARGING CLEAN EFFLUENT DIRECTLY ON TO THE AFOREMENTIONED STABILIZED PIPE OUTFALL. PAYMENT FOR DEWATERING SHALL BE INCLUDED IN THE BID PRICE FOR ITEM 207000 - EXCAVATION AND BACKFILLING FOR STRUCTURES.
- ALL DRAINAGE INLETS NEAR STA. 1+40 AND STA. 3+60 SHALL BE PROTECTED WITH ITEM 252002 - INLET SEDIMENT CONTROL, CURB INLET. REFER TO THE DETAIL ON THIS SHEET FOR INFORMATION.
- IF STREAM FLOW SHOULD EXCEED THE HEIGHT OF THE SANDBAG DIKE DURING RAINFALL EVENTS, THE STREAM FLOW SHALL BE ALLOWED TO OVERFLOW THE SANDBAG DIKE. THEREFORE, THE ENCLOSED AREA SHALL BE KEPT REASONABLY CLEAR OF DEBRIS AND OBSTRUCTIONS AT THE END OF EACH WORKDAY. THIS DAILY MAINTENANCE SHALL BE INCIDENTAL TO ITEM 265500 - STREAM DIVERSIONS.
- REMOVE THE ENTIRE EXISTING STRUCTURE CONSISTING OF STONE HEADWALLS AND PARAPETS, METAL PLATE ARCH, CONCRETE SLAB WITH TOEWALLS AND ANY FOOTERS. PREPARE THESE CLEARED AREAS FOR PROPOSED CONSTRUCTION.
- RELOCATE N.C.C. SANITARY SEWER MAIN AS PER THE DETAILS IN THESE PLANS.
- PERFORM ALL STRUCTURE-RELATED WORK AS SPECIFIED IN THESE PLANS AND CLEAR THE WORK AREA IN THE STREAM OF ANY UNNECESSARY CONSTRUCTION ITEMS AT THE END OF EACH WORKDAY.
- PERFORM ALL CHANNEL AND SLOPE STABILIZATION WORK AS SPECIFIED AND RESTORE ALL DISTURBED AREAS AS DIRECTED IN THE 'ENVIRONMENTAL COMPLIANCE PLAN' SHEET.
- ONCE ALL WORK REQUIRING THE STREAM DIVERSION AND ALL INVASIVE STREAM ACCESS IS COMPLETE, REMOVE ALL TEMPORARY DIVERSION MEASURES FROM THE STREAM AND RESTORE FULL FLOW THROUGH THE STRUCTURE.
- RESTORE AND STABILIZE ANY DISTURBED AREAS USED FOR STREAM ACCESS AND COMPLETE ANY REMAINING SIDEWALK AND CURB WORK OR REPAIR THAT MAY BE NECESSARY.
- OPEN ALL EXISTING SIDEWALKS AND REMOVE TEMPORARY PEDESTRIAN WALKWAYS AND FOOTBRIDGE AND RESTORE THESE DISTURBED AREAS AS REQUIRED.

- COMPLETE ALL REMAINING WORK ASSOCIATED WITH THIS CONTRACT.
- REMOVE ALL REMAINING TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES WHEN THEY ARE NO LONGER NEEDED. STABILIZE ALL DISTURBED AREAS IN ACCORDANCE WITH THESE PLANS, SPECIFICATIONS AND AS DIRECTED BY THE ENGINEER.
- REMOVE ALL REMAINING MAINTENANCE OF TRAFFICE DEVICES.



REFER TO 'SEQUENCE OF CONSTRUCTION' NOTE #3 FOR ADDITIONAL DIRECTION ON PLACEMENT LOCATIONS.

TEMPORARY CROSSWALK DETAIL  
N. T. S.



### PEDESTRIAN DETOUR LEGEND

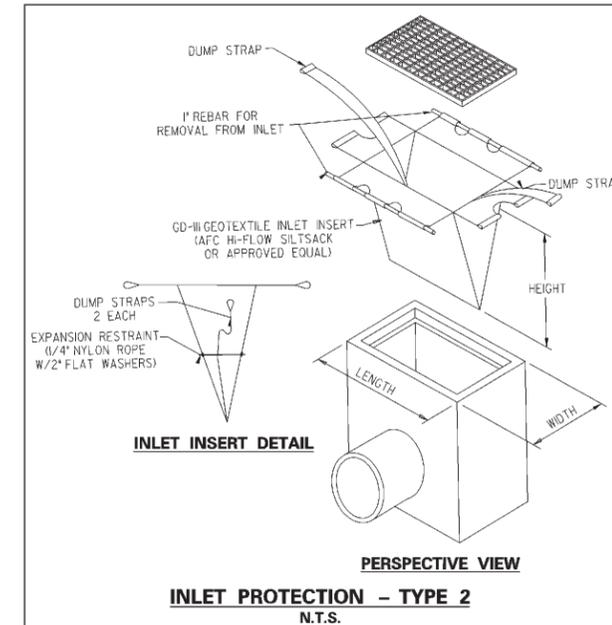

**A** R9-11(L) BLACK ON WHITE  
**B** R9-11(R) BLACK ON WHITE  
**C** W11-2 BLACK ON ORANGE  
**D** W16-9P BLACK ON ORANGE  
**E** R9-9 BLACK ON WHITE  
**F** M4-9B(L) BLACK ON ORANGE  
**G** M4-9B(R) BLACK ON ORANGE  
**Q** R11-2 BLACK ON WHITE

### CONSTRUCTION PHASING & M.O.T

	BARRICADE, TYPE 3
	CONSTRUCTION SAFETY FENCE / LENGTH
	CONSTRUCTION SAFETY FENCE
	PEDESTRIAN CHANNELIZING BARRICADE
	CONSTRUCTION WARNING SIGN LOCATION
	TEMPORARY PEDESTRIAN WALKWAY

### EROSION & SEDIMENT CONTROL

	DEWATERING BAG
	SILT FENCE / LENGTH
	SILT FENCE
	SUMP PIT, TYPE 2



THE CONTRACTOR SHALL CONSTRUCT ITEM 252002 AS PER THE DNREC EROSION AND SEDIMENT CONTROL HANDBOOK. THE GEOTEXTILE INLET INSERT SHALL MEET OR EXCEED THE SPECIFICATIONS OF TYPE GD-III GEOTEXTILE IN ACCORDANCE WITH APPENDIX A-3 OF THE DELAWARE EROSION AND SEDIMENT CONTROL HANDBOOK. ALL COSTS SHALL BE COVERED UNDER PRICE BID FOR ITEM 252002.

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ENVIRONMENTAL COMPLIANCE NOTES

1. GENERAL NOTES:

- A. THE PURPOSE OF THIS SHEET IS TO IDENTIFY THOSE ITEMS ASSOCIATED WITH ENVIRONMENTAL COMPLIANCE. IMPACT CALCULATIONS ARE FOR THE AGENCY PERMIT REPORTING PURPOSES ONLY AND ARE NOT TO BE USED FOR BIDDING PURPOSES.
- B. IF A DEPARTURE FROM THE APPROVED PLANS (WHICH WOULD AFFECT ANY NATURAL AND/OR CULTURAL RESOURCES) IS NECESSARY, THE ENVIRONMENTAL STUDIES SECTION SHALL BE CONTACTED AT (302)760-2264 TO ALLOW FOR COORDINATION WITH THE APPROPRIATE RESOURCE AGENCIES AND APPROVAL.
- C. USE OF THIS SHEET DOES NOT ALLEVIATE THE CONTRACTOR'S RESPONSIBILITY TO COMPLY WITH ALL CONDITIONS SET FORTH IN THE ENVIRONMENTAL STATEMENT AND PERMITS.

2. NATURAL RESOURCE ISSUES:

- A. PERMIT REQUIREMENTS/APPROVALS\*:
  - U.S. ARMY CORPS OF ENGINEERS (COE): NWP\*3(a)&(c) (No PCN)
  - DNREC - WETLANDS & SUBAQUEOUS LANDS (WLSL): PROJECT CONSISTENT WITH DEL. CODE CH. 92, SECTION 7217, SPECIAL EXEMPTION (b) AS AMENDED BY SB186
  - DNREC - WATER QUALITY (WQC) & COASTAL ZONE CONSISTENCY (CZM): WAIVED (PROJECT NOT LOCATED IN CRW)
  - NATIONAL PARK SERVICE (NPS)\*\* - COORDINATION ONGOING
  - NEW CASTLE COUNTY FLOODPLAIN PERMIT (NCC)\*\* - COORDINATION ONGOING

\* THE PERMITS/APPROVALS LISTED ARE THOSE REQUIRED FOR THIS PROJECT. THE ENVIRONMENTAL STUDIES SECTION IS RESPONSIBLE FOR COORDINATING AND/OR OBTAINING THIS APPROVAL.  
 \*\* THE CONTRACTOR MUST ENSURE THAT THESE PERMITS/APPROVALS ARE IN THEIR POSSESSION PRIOR TO BEGINNING CONSTRUCTION IN THE PERMITTED AREA(S) AND ENSURE IT IS DISPLAYED ON-SITE DURING THE ENTIRE CONSTRUCTION PERIOD.

- B. CONSTRUCTION RESTRICTIONS:
  - FISHERIES - NONE
  - ENDANGERED SPECIES - NONE
  - MIGRATORY BIRDS - NONE

3. CULTURAL RESOURCE ISSUES:

- A. COORDINATION ONGOING

4. STREAM RESTORATION AND SLOPE RIPRAP TREATMENT

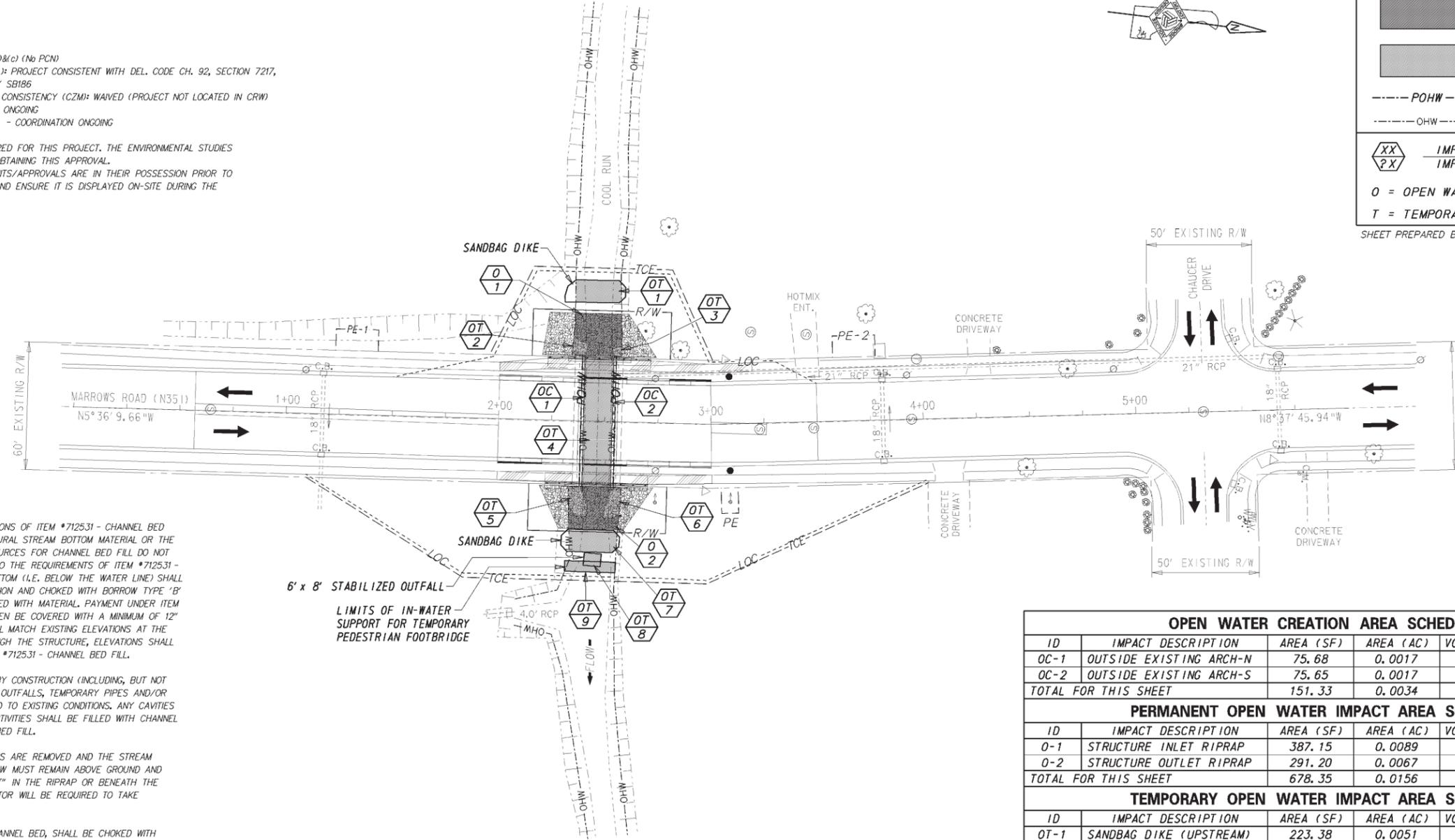
- A. THE CONTRACTOR SHALL FOLLOW THE SPECIAL PROVISIONS OF ITEM #712531 - CHANNEL BED FILL IN REGARDS TO THE SALVAGING OF ON-SITE NATURAL STREAM BOTTOM MATERIAL OR THE FURNISHING OF OFF-SITE MATERIAL. IF SUFFICIENT SOURCES FOR CHANNEL BED FILL DO NOT EXIST ON-SITE, ANY NEW MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF ITEM #712531 - CHANNEL BED FILL. ALL RIPRAP IN THE CHANNEL BOTTOM (I.E. BELOW THE WATER LINE) SHALL BE RECESSED ONE FOOT BELOW STREAM BED ELEVATION AND CHOKED WITH BORROW TYPE 'B' SO THAT ALL OF THE VOIDS IN THE RIPRAP ARE FILLED WITH MATERIAL. PAYMENT UNDER ITEM #209002 - BORROW TYPE 'B'. THE RIPRAP SHALL THEN BE COVERED WITH A MINIMUM OF 12" CHANNEL BED FILL. FINAL CHANNEL ELEVATIONS SHALL MATCH EXISTING ELEVATIONS AT THE UPSTREAM AND DOWNSTREAM PROJECT LIMITS. THROUGH THE STRUCTURE, ELEVATIONS SHALL BE AS NOTED ON THE PLANS. PAYMENT UNDER ITEM #712531 - CHANNEL BED FILL.
- B. OTHER AREAS OF THE CHANNEL BOTTOM AFFECTED BY CONSTRUCTION (INCLUDING, BUT NOT LIMITED TO, THE LOCATION OF SLUMP PITS, STABILIZED OUTFALLS, TEMPORARY PIPES AND/OR SANDBAG DIKES AND DIVERSIONS) SHALL BE RESTORED TO EXISTING CONDITIONS. ANY CAVITIES OR SCOUR HOLES RESULTING FROM CONSTRUCTION ACTIVITIES SHALL BE FILLED WITH CHANNEL BED FILL. PAYMENT UNDER ITEM #712531 - CHANNEL BED FILL.
- C. WHEN ALL EROSION AND SEDIMENT CONTROL MEASURES ARE REMOVED AND THE STREAM RETURNS TO ITS NATURAL FLOW CONDITIONS, THE FLOW MUST REMAIN ABOVE GROUND AND ABOVE THE RIPRAP (I.E. THE FLOW CANNOT BE "LOST" IN THE RIPRAP OR BENEATH THE STRUCTURE). IF THIS IS NOT ACHIEVED, THE CONTRACTOR WILL BE REQUIRED TO TAKE CORRECTIVE ACTION AT THE CONTRACTOR'S EXPENSE.
- D. ALL RIPRAP ON THE STREAM BANK, OUTSIDE THE CHANNEL BED, SHALL BE CHOKED WITH DELAWARE #57 STONE, AND FILLED WITH TOPSOIL. PLACE JUST ENOUGH CHOKO MATERIAL TO PREVENT THE LOSS OF TOPSOIL THROUGH THE RIPRAP, AND THEN FINISH FILLING THE VOIDS WITH TOPSOIL SO THAT THE RIPRAP PEAKS ARE BARELY VISIBLE. AN ADDITIONAL 4" TOPSOIL LAYER SHALL BE PLACED ON TOP OF THE RIPRAP. SEEDING SHALL BE PERMANENT GRASS SEEDING WET GROUND (ITEM NO. 734015) FROM STREAM BASE FLOW ELEVATION TO 2' UP THE SLOPE AND PERMANENT GRASS SEEDING DRY GROUND (ITEM NO. 734013) ON THE REMAINING SLOPE. ALL WORK, STARTING WITH THE INITIAL CHOKING WITH TOPSOIL THROUGH THE SEEDING, SHALL BE COMPLETED PRIOR TO ANY RAIN EVENT. PAYMENT FOR RIPRAP AND DELAWARE #57 STONE SHALL BE PAID FOR UNDER THE RIPRAP ITEM. ALL OTHER ITEMS SHALL BE PAID FOR UNDER THEIR RESPECTIVE PAY ITEMS.

WETLAND DELINEATION FOR THIS PROJECT WAS COMPLETED BY DELDOT ENVIRONMENTAL STUDIES IN AUGUST 2010 IN ACCORDANCE WITH THE 1987 CORPS OF ENGINEERS WETLAND DELINEATION MANUAL AND REGIONAL SUPPLEMENT.

NO WETLANDS EXIST WITHIN PROJECT AREA.

LEGEND	
	CREATION AREA
	PERMANENT IMPACT AREA
	TEMPORARY IMPACT AREA
	PROPOSED ORDINARY HIGH WATER
	ORDINARY HIGH WATER
	IMPACT AREA TYPE ID. (SEE BELOW)
	IMPACT AREA ID. AND/OR NUMBER
O	OPEN WATER IMPACT
C	CREATION AREA
T	TEMPORARY IMPACT

SHEET PREPARED BY: JERRY BEDWELL, 11/10/11  
 DELAWARE DEPARTMENT OF TRANSPORTATION  
 BRIDGE DESIGN SECTION



OPEN WATER CREATION AREA SCHEDULE					
ID	IMPACT DESCRIPTION	AREA (SF)	AREA (AC)	VOLUME (CY)	JURISDICTION
OC-1	OUTSIDE EXISTING ARCH-N	75.68	0.0017	28.03	COE/DNREC
OC-2	OUTSIDE EXISTING ARCH-S	75.65	0.0017	28.02	COE/DNREC
TOTAL FOR THIS SHEET		151.33	0.0034	56.05	COE/DNREC
PERMANENT OPEN WATER IMPACT AREA SCHEDULE					
ID	IMPACT DESCRIPTION	AREA (SF)	AREA (AC)	VOLUME (CY)	JURISDICTION
O-1	STRUCTURE INLET RIPRAP	387.15	0.0089	28.65	COE/DNREC
O-2	STRUCTURE OUTLET RIPRAP	291.20	0.0067	21.55	COE/DNREC
TOTAL FOR THIS SHEET		678.35	0.0156	50.20	COE/DNREC
TEMPORARY OPEN WATER IMPACT AREA SCHEDULE					
ID	IMPACT DESCRIPTION	AREA (SF)	AREA (AC)	VOLUME (CY)	JURISDICTION
OT-1	SANDBAG DIKE (UPSTREAM)	223.38	0.0051	41.16	COE/DNREC
OT-2	CONCRETE TO RIPRAP	46.86	0.0011	3.47	COE/DNREC
OT-3	CONCRETE TO RIPRAP	18.45	0.0004	1.37	COE/DNREC
OT-4	CONCRETE TO RIPRAP	828.52	0.0190	61.31	COE/DNREC
OT-5	CONCRETE TO RIPRAP	99.82	0.0023	7.39	COE/DNREC
OT-6	CONCRETE TO RIPRAP	87.46	0.0020	6.47	COE/DNREC
OT-7	SANDBAG DIKE (DOWNSTREAM)	232.84	0.0053	34.46	COE/DNREC
OT-8	STABILIZED OUTFALL	48.00	0.0011	1.78	COE/DNREC
OT-9	FOOTBRIDGE SUPPORTS	119.17	0.0027	4.41	COE/DNREC
TOTAL FOR THIS SHEET		1704.50	0.0390	161.82	COE/DNREC

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**CHANGEABLE MESSAGE BOARDS**

**CMS-1** PRIOR TO DETOUR (10 DAYS PRIOR TO BEGINNING OF DETOUR)

**MARROWS ROAD TO CLOSE**      **STARTING XXXXXX**

**CMS-1** DURING DETOUR

XXXXXXXXXX      XXXXXXXXX  
 XXXXXXXXX      XXXXXXXXX  
 XXXXXXXXX      XXXXXXXXX

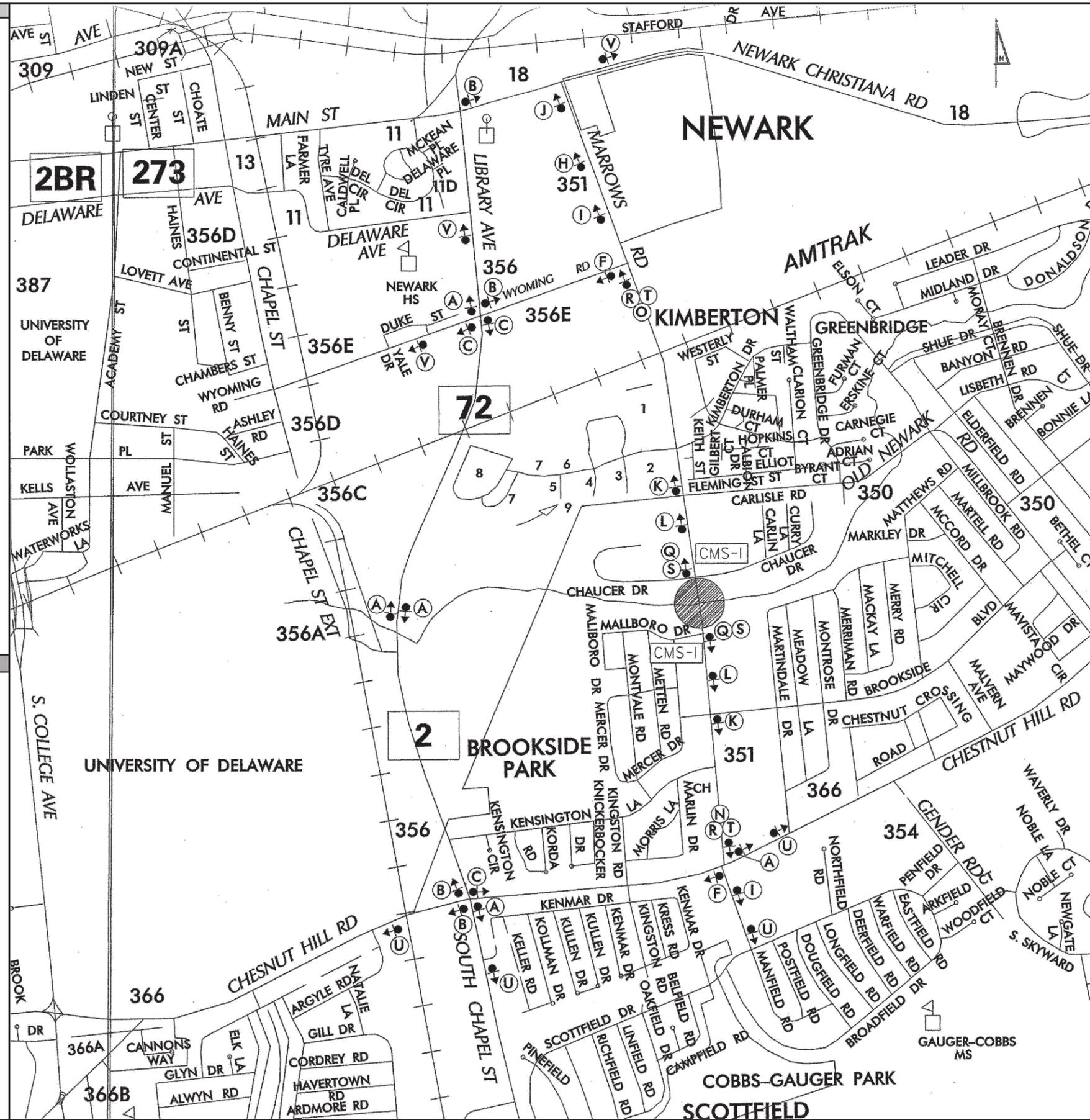
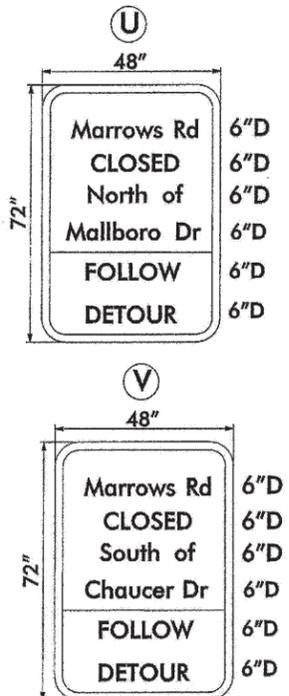
**CMS-2** PRIOR TO DETOUR (10 DAYS PRIOR TO BEGINNING OF DETOUR)

XXXXXXXXXX      XXXXXXXXX  
 XXXXXXXXX      XXXXXXXXX  
 XXXXXXXXX      XXXXXXXXX

**CMS-2** DURING DETOUR

XXXXXXXXXX      XXXXXXXXX  
 XXXXXXXXX      XXXXXXXXX  
 XXXXXXXXX      XXXXXXXXX

**SPECIAL SIGNS**



**LEGEND**

<b>A</b> DETOUR ↑	<b>B</b> DETOUR ←	<b>C</b> DETOUR →
<b>D</b> DETOUR ↙	<b>E</b> DETOUR ↗	<b>F</b> END DETOUR
<b>G</b> DETOUR AHEAD	<b>H</b> DETOUR 1000 FT	<b>I</b> DETOUR 500 FT
<b>J</b> ROAD CLOSED AHEAD	<b>K</b> ROAD CLOSED 1000 FT	<b>L</b> ROAD CLOSED 500 FT
<b>M</b> ROAD NAME	<b>N</b> DETOUR ←	<b>O</b> DETOUR →
<b>P</b> ROAD CLOSED XX MILES AHEAD LOCAL TRAFFIC ONLY	<b>Q</b> ROAD CLOSED	<b>R</b> ROAD CLOSED TO THRU TRAFFIC
<b>S</b> BARRICADE	<b>T</b> BARRICADE	

**GENERAL NOTES**

- ALL DETOUR SIGNING INCLUDING TRAILBLAZERS, ARE TO BE SUPPLIED AND MAINTAINED BY THE GENERAL CONTRACTOR IN COMPLIANCE TO THE DE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
- THE CONTRACTOR SHALL COMPLY WITH GUIDELINES IN "THE DELAWARE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (DE-MUTC PART 6)" FOR LIGHTS, BARRICADES AND SIGNS, (AS PER LATEST REVISION)
- FIELD CONDITIONS MAY DICTATE CHANGES AT SOME TIME DURING THE LIFE OF THE CONTRACT. IN THE EVENT OF OMISSIONS OR CORRECTIONS, THE SIGNING PROVISIONS OF THE DELAWARE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES WILL PREVAIL.
- SIGNS J THROUGH L AND P THROUGH R, THE WORD (ROAD) SHOULD BE CHANGED TO RAMP, R/R OR BRIDGE WHERE APPLICABLE.
- WARNING SIGNS SHOULD BE MOUNTED ON BREAKAWAY POSTS AND HAVE RETROREFLECTIVE FLUORESCENT SHEETING.
- "S" BARRICADES SHALL COMPLETELY RUN THE FULL WIDTH OF ROADWAY.
- BARRICADES SHALL BE A MINIMUM OF 6 FEET WIDE UNLESS DIRECTED BY THE ENGINEER.

RECOMMENDED \_\_\_\_\_ DATE: \_\_\_\_\_      RECOMMENDED *John Kulla* DATE: 2/10/11      RECOMMENDED *Marshall* DATE: 2/10/11      APPROVED CHIEF SAFETY OFFICER *Marshall* DATE: 2-10-11      APPROVED TRAFFIC ENGINEER *Al Ch...* DATE: 2/10/11

TEST HOLE	ACTUAL SIZE, MATERIAL, TYPE OF UTILITY	OWNER	UTILITY CONDITION			REF. MARK ELEV.	UTILITY TOP EL.	UTILITY BOTTOM EL.	WIDTH	NORTHING	EASTING	SURFACE/DEPTH		GENERALIZED SOIL TYPE						
			GOOD	POOR	OTHER							ASPHALT	CONC.	SOIL	SELECT	FILL	ROCK	SAND	CLAY	OTHER
1 10-28-10	12" CAST IRON PIPE WATER (OL-D')	UNITED WATER	N/A			HUB 67.66'	58.30'	N/A	N/A	608401.9871	568665.3303		X			X	X			
2 10-28-10	12" CAST IRON PIPE WATER (OL-D')	UNITED WATER	N/A			HUB 67.35'	57.95'	N/A	N/A	608504.9467	568654.3236		X			X	X			
3 11-01-10	28" WIDE CONCRETE DUCT TELEPHONE	VERIZON	N/A			X-CUT 67.33'	64.04'	N/A	28"	608500.6028	568606.7218	4'				X	X			
4 11-01-10	28" WIDE CONCRETE DUCT TELEPHONE	VERIZON	N/A			X-CUT 67.14'	64.80'	N/A	28"	608397.2712	568616.7947	4'				X	X			

William S. Richardson, P.L.S.  
Underground Services, Inc.

NOTES:  
TEST HOLE #1 AND #2  
NO SIZE DUE TO DEPTH, WATER AND COLLAPSING HOLE.

CHECKED BY: WSR  
Date: 11-9-10

ASCE QUALITY LEVEL STANDARD DEFINITIONS:

QL "A" - PRECISE HORIZONTAL AND VERTICAL LOCATION OF UTILITIES OBTAINED BY THE ACTUAL EXPOSURE (OR VERIFICATION OF PREVIOUSLY EXPOSED AND SURVEYED UTILITIES) AND SUBSEQUENT MEASUREMENT OF SUBSURFACE UTILITIES, USUALLY AT A SPECIFIC POINT (TEST HOLE) USING MINIMALLY INTRUSIVE EXCAVATION EQUIPMENT.

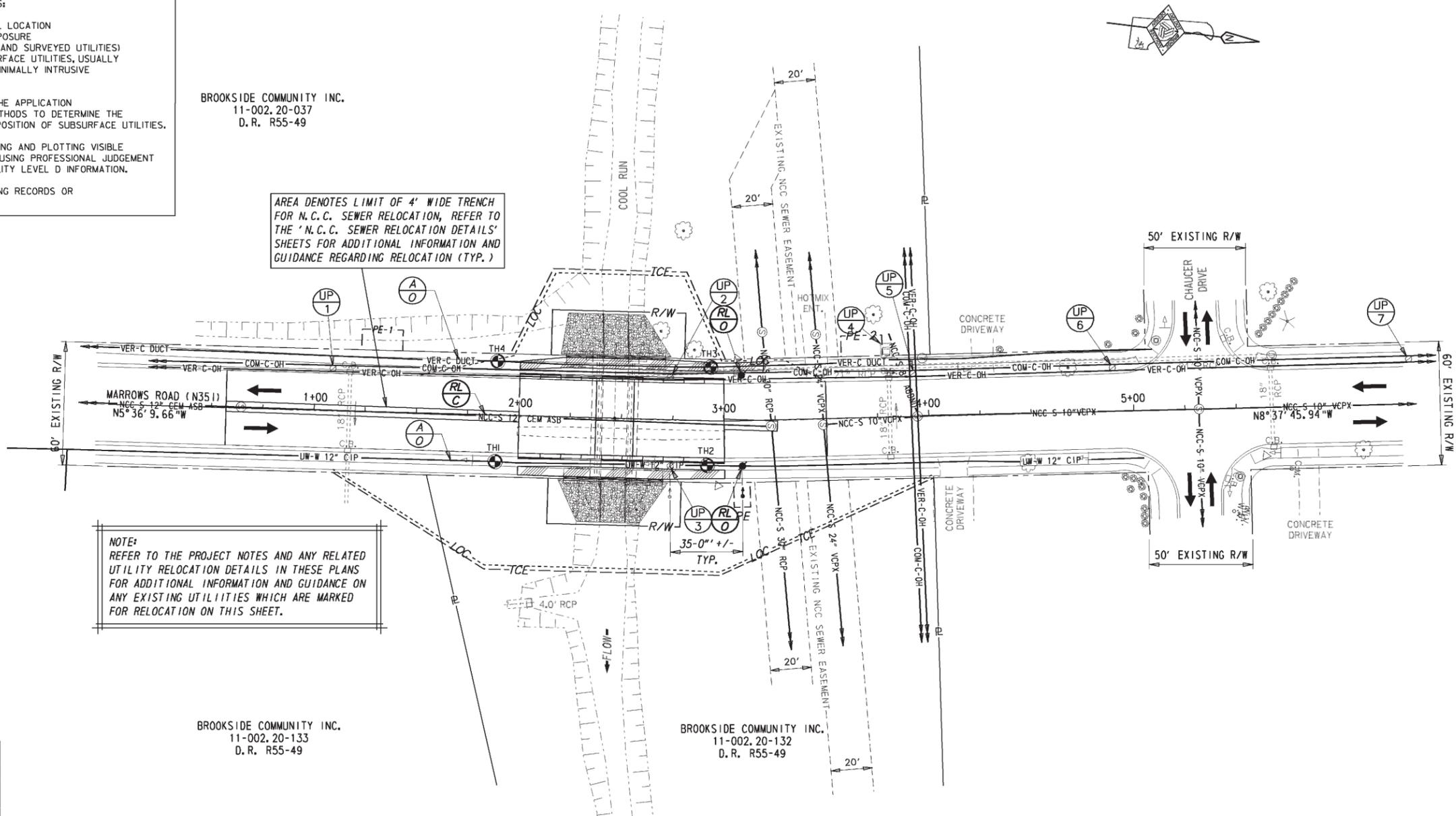
QL "B" - INFORMATION OBTAINED THROUGH THE APPLICATION OF APPROPRIATE SURFACE GEOPHYSICAL METHODS TO DETERMINE THE EXISTENCE AND APPROXIMATE HORIZONTAL POSITION OF SUBSURFACE UTILITIES.

QL "C" - INFORMATION OBTAINED BY SURVEYING AND PLOTTING VISIBLE ABOVE-GROUND UTILITY FEATURES AND BY USING PROFESSIONAL JUDGEMENT IN CORRELATING THIS INFORMATION TO QUALITY LEVEL D INFORMATION.

QL "D" - INFORMATION DERIVED FROM EXISTING RECORDS OR ORAL RECOLLECTIONS.

BROOKSIDE COMMUNITY INC.  
11-002.20-037  
D. R. R55-49

AREA DENOTES LIMIT OF 4' WIDE TRENCH FOR N.C.C. SEWER RELOCATION, REFER TO THE 'N.C.C. SEWER RELOCATION DETAILS' SHEETS FOR ADDITIONAL INFORMATION AND GUIDANCE REGARDING RELOCATION (TYP.)



NOTE:  
REFER TO THE PROJECT NOTES AND ANY RELATED UTILITY RELOCATION DETAILS IN THESE PLANS FOR ADDITIONAL INFORMATION AND GUIDANCE ON ANY EXISTING UTILITIES WHICH ARE MARKED FOR RELOCATION ON THIS SHEET.

BROOKSIDE COMMUNITY INC.  
11-002.20-133  
D. R. R55-49

BROOKSIDE COMMUNITY INC.  
11-002.20-132  
D. R. R55-49

EXISTING UTILITY POLES

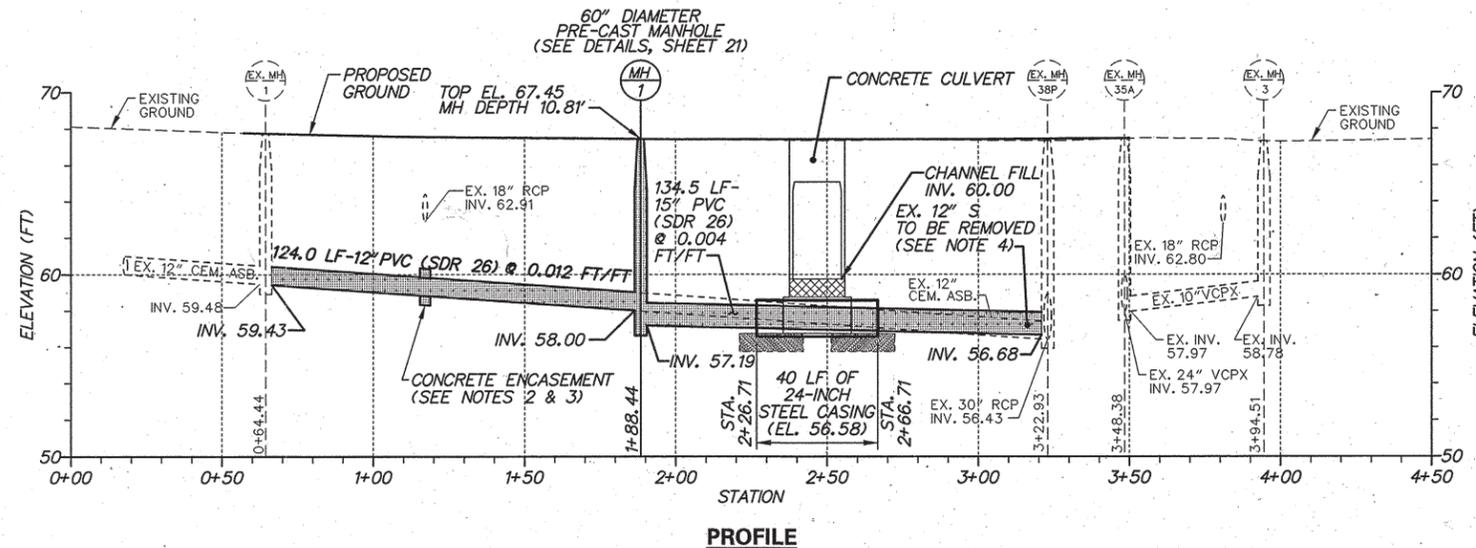
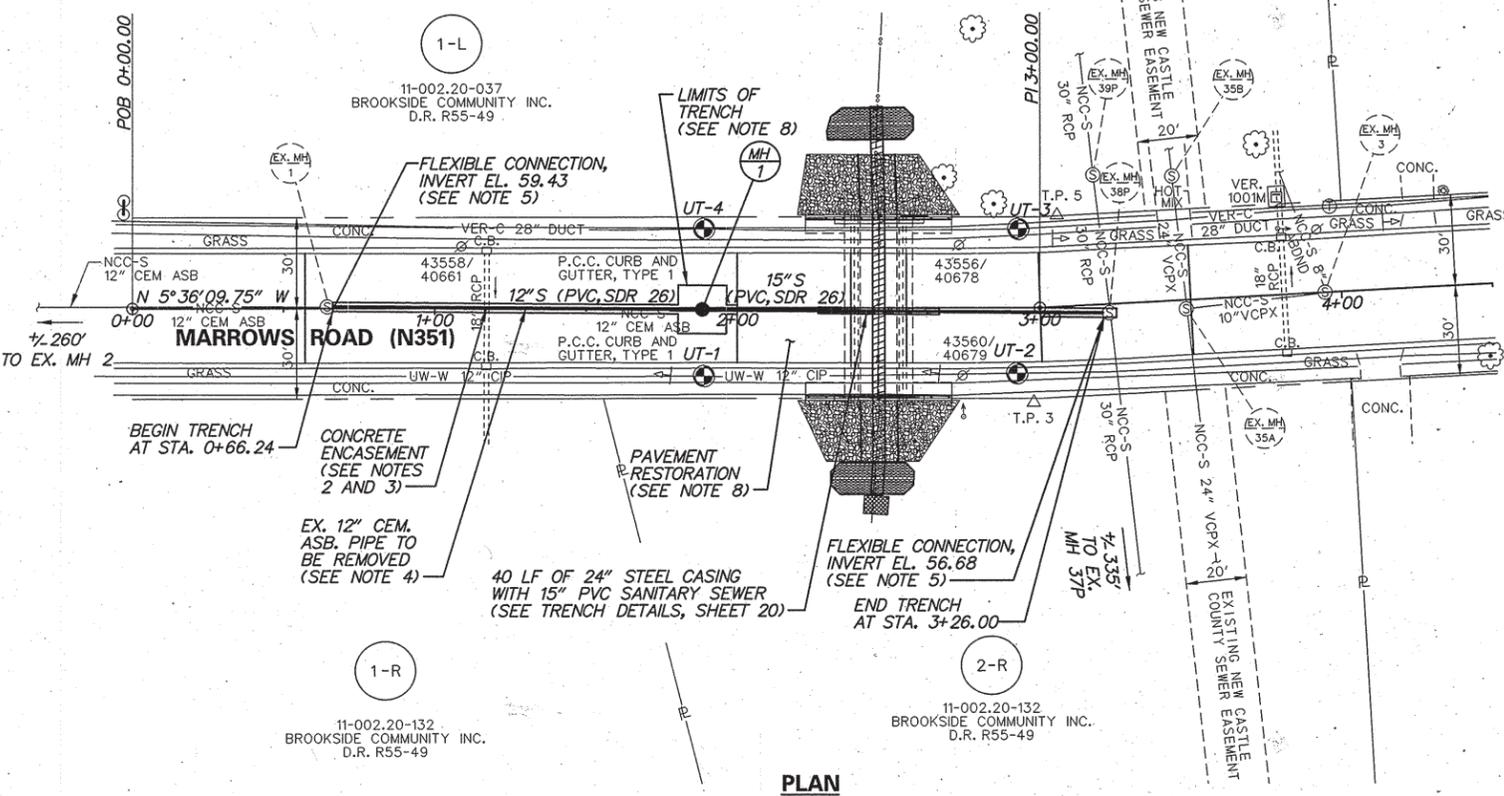
NO.	DESCRIPTION
1	DP&L (# UNKNOWN)
2	DP&L 43556/40678
3	DP&L 43560/40679
4	VERIZON #1001M (CABINET)
5	DP&L 34555/40688
6	DP&L 43553/
7	DP&L 43551/40714

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UTILITY TEST HOLE SCHEDULE						
NO.	UTILITY	STATION	OFFSET	GRND EL.	COVER	O. D. & MATERIAL
UT-1	UW-W	1+88.97	22.63' RT.	67.66	9.36'	12" CAST IRON PIPE
UT-2	UW-W	2+92.51	21.73' RT.	67.35	9.40'	12" CAST IRON PIPE
UT-3	VER-C	2+92.84	26.07" LT.	67.13	3.09'	28" WIDE CONC. DUCT
UT-4	VER-C	1+89.02	26.14" LT.	67.14	2.34'	28" WIDE CONC. DUCT

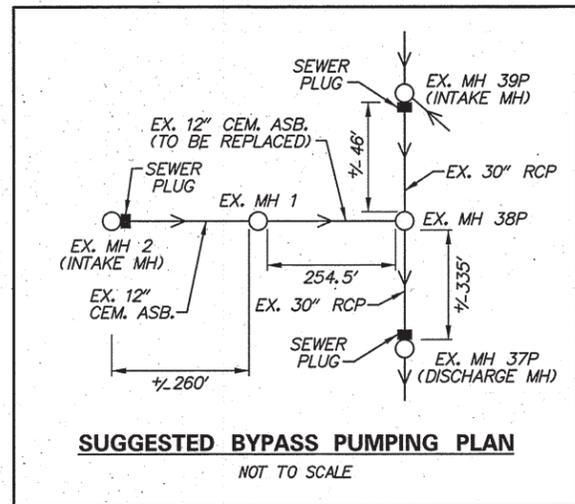
MANHOLE SCHEDULE					
NO.	NORTHING	EASTING	BOX SIZE	T. G. EL.	INV. EL.
1	608399.2	568643.3	48" x 48"	67.45	57.19

GRAVITY SEWER SCHEDULE						
FROM MH NO.	TO MH NO.	LENGTH (FT)	SIZE/TYPE	SLOPE	INV. EL.	DIS. EL.
EX. MH 1	1	119.50	12" PVC	0.012	59.43	58.00
1	EX. MH 38P	130.00	15" PVC	0.004	57.19	56.68



- SUPPLEMENTAL UTILITY (SEWER) NOTES:**
- SEE BY-PASS PUMPING NOTES, THIS SHEET, AND ITEM 614902 - BY-PASS PUMPING OPERATION. PAYMENT FOR BY-PASS PUMPING SHALL BE INCIDENTAL TO ITEM 753503 - INSTALLING SANITARY SEWER, PVC 12" AND ITEM 753504 - INSTALLING SANITARY SEWER, PVC 15".
  - WHERE PROPOSED PVC SEWER PIPE CROSSES EXISTING RCP STORM PIPE, CONTRACTOR SHALL ENCASE PROPOSED SEWER IN ACCORDANCE WITH NCC STANDARD DETAIL SS-UC-1. PAYMENT FOR PROPOSED SEWER ENCASEMENT SHALL BE INCIDENTAL TO ITEM 753503 - INSTALLING SANITARY SEWER, PVC 12".
  - CONTRACTOR SHALL PROTECT AND SUPPORT EXISTING 18" RCP AT STA. 1+17.00 DURING EXCAVATION. PAYMENT FOR PROTECTION AND SUPPORT SHALL BE INCIDENTAL TO ITEM 753503 - INSTALLING SANITARY SEWER, PVC 12". ANY DAMAGE TO EXISTING UTILITIES DURING EXCAVATION ACTIVITIES IS THE RESPONSIBILITY OF THE CONTRACTOR AND REPAIRS SHOULD BE MADE IMMEDIATELY.
  - REMOVAL OF EXISTING 12" CEMENT ASBESTOS PIPE FROM EXISTING MH-1 TO EXISTING MH-38P SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS. CEMENT ASBESTOS PIPE IS CONSIDERED AS A HAZARDOUS MATERIAL AND THE REMOVAL AND PROPER DISPOSAL IS A CLASS II ABATEMENT. PAYMENT FOR THE PROPER REMOVAL AND DISPOSAL OF THE EXISTING 12-INCH CEMENT ASBESTOS PIPE SHALL BE UNDER ITEM 208509 - REMOVAL OF ASBESTOS PIPE.
  - PIPE TO EXISTING MANHOLE CONNECTIONS AT EXISTING MANHOLE NO. 1 AND EXISTING MANHOLE NO. 38P SHALL BE MADE BY CORE DRILLING AND INSTALLING A FLEXIBLE CONNECTOR IN ACCORDANCE WITH THE SPECIFICATIONS AND THE DETAIL ON SHEET 20. PAYMENT SHALL BE INCIDENTAL TO ITEM 753503 - INSTALLING SANITARY SEWER, PVC 12" AND ITEM 753504 - INSTALLING SANITARY SEWER, PVC 15".
  - THE CONTRACTOR SHALL LOCATE AND MAINTAIN UNINTERRUPTED SERVICE FROM ALL SANITARY SERVICE CONNECTIONS (IF PRESENT) DISTURBED BY CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL LOCATE ALL SANITARY SERVICE CONNECTIONS PRIOR TO CONSTRUCTION AND BY-PASS PUMPING OPERATIONS. SERVICE SHALL BE MAINTAINED BY MEANS OF TEMPORARY RECEPTACLES WITH PUMPS OR PIPING POSITIONED TO COLLECT FLOW FROM THE DISTURBED SANITARY SERVICE CONNECTIONS. THE TEMPORARY SYSTEM SHALL AT ALL TIMES BE POSITIONED IN A MANNER TO PROTECT THE PUBLIC FROM ACCIDENTAL OR CASUAL EXPOSURE TO WASTEWATER. CONTRACTOR SHALL PROVIDE MEANS OF CONVEYING THE SANITARY FLOWS TO A CONFIRMED SANITARY SEWER MANHOLE. MANHOLES SHALL BE MADE SECURE BY SAFETY ROPES, BARRICADES, DEDICATED PERSONNEL, OR OTHER MEANS TO PREVENT THE PUBLIC FROM ACCIDENTAL OR CASUAL ENTRY, OR ARE TO BE TRANSPORTED VIA A TANKER TRUCK THAT IS LICENSED AND APPROVED BY LOCAL AUTHORITIES FOR THE TRANSPORT OF WASTEWATER TO A SANITARY WASTEWATER DISPOSAL FACILITY. ALL FEES, SURCHARGES, FINES, TAXES, AND OTHER RELATED COSTS NECESSARY FOR THIS WORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE IN ACCORDANCE WITH ITEM 614902 - BY-PASS PUMPING OPERATIONS. PAYMENT SHALL BE INCIDENTAL TO ITEM 753503 - INSTALLING SANITARY SEWER, PVC 12" AND ITEM 753504 - INSTALLING SANITARY SEWER, PVC 15".
  - DETAILS SHOWN ON THIS SHEET PERTAIN TO THE RELOCATION OF THE N.C.C. SEWER ONLY. FOR GENERAL UTILITY (SEWER ONLY) NOTES, SEE SHEET 20.
  - SEE SHEET 20 FOR TRENCH DETAILS AND LIMITS OF PAVEMENT RESTORATION.

- BY-PASS PUMPING NOTES:**
- CONTRACTOR TO NOTIFY NEW CASTLE COUNTY SEWER OF PROPOSED PUMP-AROUND METHOD AND SCHEDULE. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL PROVIDE AN EMERGENCY CONTACT NAME AND PHONE NUMBER. CONTACT MR. CHUCK RUTTER AT (302) 395-5756.
  - SEWAGE FLOW IN EXISTING SEWER IS TO BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION. AT NO TIME WILL IT BE PERMITTED FOR SEWAGE TO BE DISCHARGED ONTO THE GROUND OR INTO ANY STREAMS. ALL COSTS TO MAINTAIN FLOW SHALL BE INCIDENTAL TO ITEM 753503 - INSTALLING SANITARY SEWER, PVC 12" AND ITEM 753504 - INSTALLING SANITARY SEWER, PVC 15".
  - THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY FLOODING OR DAMAGE THAT MAY RESULT FROM THIS OPERATION.
  - THE CONTRACTOR SHALL NOTIFY MR. CHUCK RUTTER OF NEW CASTLE COUNTY SEWER AT (302) 395-5756 AT LEAST 48 HOURS IN ADVANCE OF THE INTENDED START OF CONSTRUCTION AND COORDINATE ALL WORK WITH MR. RUTTER.
  - THE CONTRACTOR SHALL FURNISH AND INSTALL TEMPORARY PUMPS, SUCTION AND DISCHARGE PIPING, PLUGS, AND APPURTENANCES TO DIVERT THE FLOW OF SEWAGE AROUND THE PIPE SECTION. THE BY-PASS PUMPING SYSTEM SHALL BE OF SUFFICIENT CAPACITY TO TRANSPORT THE DESIGN FLOW NOTED ON THESE CONTRACT DRAWINGS. THE CONTRACTOR WILL BE RESPONSIBLE FOR FURNISHING THE NECESSARY LABOR AND SUPERVISION TO SET UP AND OPERATE THE BY-PASS PUMPING SYSTEM. STATIONARY EQUIPMENT (PUMPS, COMPRESSORS, ELECTRIC GENERATOR, ETC.) ENGINES SHALL BE CRITICALLY SILENCED WITH EXHAUST SILENCERS AND INSULATED ENCLOSURES. THE BY-PASS PUMPING SYSTEM SHALL BE FURNISHED AND INSTALLED AS TO PREVENT SPILLS FROM THE PUMPS AND PIPING. ANY SPILLAGE THAT OCCURS SHALL BE IMMEDIATELY CLEANED UP, AND THE SPILL AREA RETURNED TO A CLEAN AND SANITARY CONDITION. THE LOCATION OF THE BY-PASS PUMPING DISCHARGE MUST BE APPROVED IN ADVANCE BY NEW CASTLE COUNTY SEWER.
  - FLOW CONTROL PRECAUTIONS: WHEN FLOW IN A SANITARY SEWER LINE IS PLUGGED, SUFFICIENT PRECAUTIONS MUST BE TAKEN TO PROTECT THE SANITARY SEWER LINE AND ADJACENT PROPERTY OWNERS FROM OVERFLOW DAMAGE THAT MIGHT RESULT FROM THE SANITARY SEWER SURCHARGING.
  - DESIGN FLOW FOR PUMP AROUND SYSTEMS BASED ON FLOW DATA PROVIDED BY NEW CASTLE COUNTY. SEE SUGGESTED BY-PASS PUMPING PLAN (THIS SHEET).
    - PUMPING SYSTEM FROM EX. MH 2 TO EX. MH 38P SHALL BE DESIGNED FOR 0.5 MGD WITH A FACTOR OF SAFETY OF 2 = 1 MGD.
    - PUMPING SYSTEM FROM EX. MH 39P TO EX. MH 37P SHALL BE DESIGNED FOR 3 MGD WITH A FACTOR OF SAFETY OF 2 = 6 MGD.
  - EXISTING SEWER SYSTEM MAY BE SUBJECT TO HIGHER FLOWS DURING STORM EVENTS. THE CONTRACTOR SHALL TAKE THE NECESSARY PRECAUTIONS TO AVOID SEWAGE OVERFLOWS DURING INCLIMATE WEATHER.
  - PUMP AROUND SYSTEM COMPONENTS AND INSTALLATION AND OPERATION SHALL CONFORM TO THE SPECIFICATIONS AND GUIDELINES OF THE MANUFACTURER.
  - PUMP DISCHARGING PIPING SHALL BE SUPPORTED OVER STREAM OR CULVERT AS REQUIRED DURING CONSTRUCTION ACTIVITIES.
  - ALL PRIVATE PROPERTY OWNERS SHALL BE NOTIFIED OF BY-PASS PUMPING OPERATIONS - SEE SPECIAL PROVISION SPECIFICATION FOR ITEM 614902 - BY-PASS PUMPING OPERATION.



The sanitary sewer design concept has been reviewed and approved for compliance with the New Castle County Standard Specifications and the Ten State Standards. This review and approval is limited solely to the issue of compliance with the aforementioned standards and specifications, and New Castle County shall not be responsible for any other aspect or matter related to the design or installation of the proposed sanitary sewer.

*Dale G. 1-20-12*

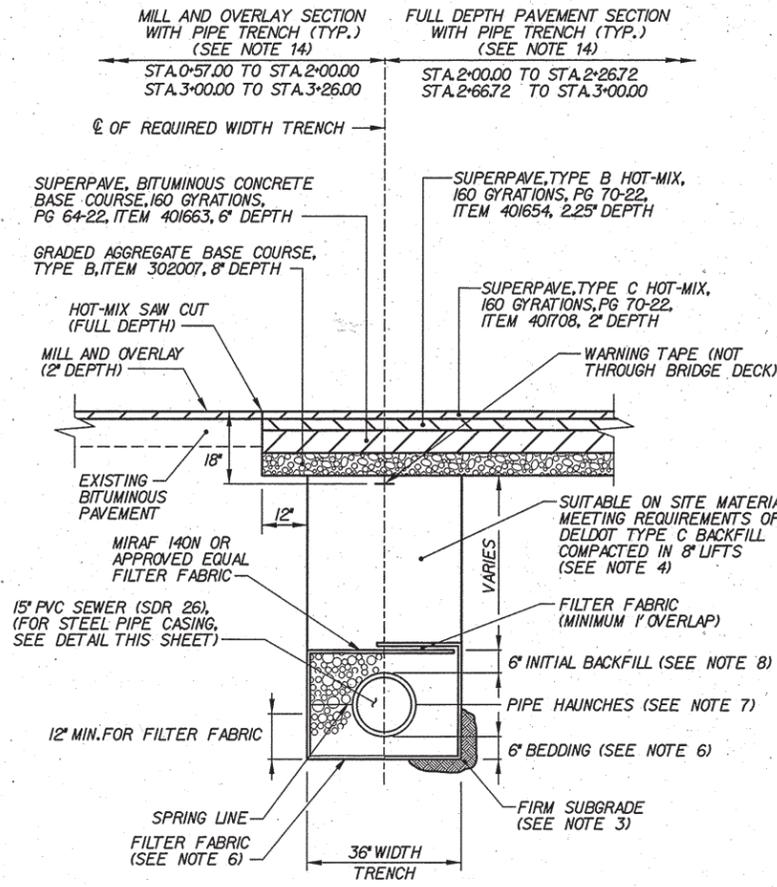
PREPARED BY THE CONSULTING FIRM OF

**WR&A**

WHITMAN, REQUARDT & ASSOCIATES, LLP  
ENGINEERS - ARCHITECTS - PLANNERS EST. 1912

SEAL

RECOMMENDED



**TRENCHING LIMITS DETAIL  
BEYOND STEEL PIPE CASING**

NOT TO SCALE

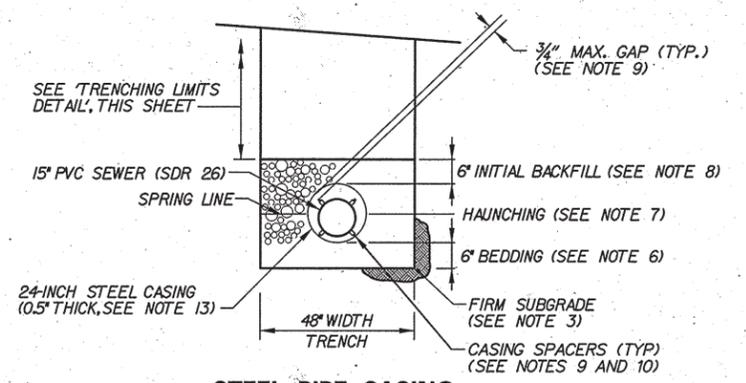
**NOTES:**

- EXISTING HOT-MIX PAVEMENT MAY BE REMOVED BY A MILLING OPERATION. ALL HOT-MIX MATERIAL MUST BE REMOVED TO THE SAW CUT JOINTS PRIOR TO HOT-MIX PATCHING.
- NO ADDITIONAL PAYMENT SHALL BE MADE FOR PLACING GABC IN FLEXIBLE PAVEMENT SECTION BEYOND THAT MADE UNDER ITEM 302007 - GRADED AGGREGATE BASE COURSE, TYPE B.
- BOTTOM OF TRENCH SHALL BE FIRM. REMOVE ALL LOOSE MATERIAL.
- ALL BACKFILL AND BEDDING TO BE COMPACTED IN 8" LIFTS TO 95% STANDARD PROCTOR DENSITY BY ASTM D598.
- PAYMENT FOR STONE BEDDING, HAUNCHING, AND INITIAL BACKFILL SHALL BE INCIDENTAL TO THE RESPECTIVE ITEM FOR INSTALLATION OF SANITARY SEWER, PVC (ITEM 753503 AND ITEM 753504). STONE BEDDING SHALL BE NO. 8 STONE AND SHALL CONFORM TO SECTION 20.04-1 OF THE N.C.C. STANDARD SPECIFICATIONS.
- BEDDING: PRIOR TO PIPE INSTALLATION, CAREFULLY BRING THE 6" OF BEDDING MATERIAL TO GRADE ALONG THE ENTIRE LENGTH OF PIPE TO BE INSTALLED. IF TRENCH BOTTOM IS IN UNSUITABLE MATERIAL, MORE THAN 6" OF BEDDING MAY BE REQUIRED AND FILTER FABRIC WILL BE REQUIRED PRIOR TO PLACEMENT OF BEDDING AND INITIAL BACKFILL. FILTER FABRIC SHALL BE MIRAF 140N OR APPROVED EQUAL.

- PIPE HAUNCHES: CAREFULLY WORK, BY HAND, STONE BEDDING FROM THE EDGE OF THE TRENCH UP AND UNDER THE PIPE TO SUPPORT THE HAUNCHES. CONTINUE FILLING, BY HAND, TO THE SPRING LINE OF THE PIPE.
- INITIAL BACKFILL: CONTINUE WITH STONE BEDDING MATERIAL TO A DEPTH OF AT LEAST 6" ABOVE THE TOP OF THE PIPE (2" THROUGH THE STRUCTURE). MECHANICAL PLACEMENT OF BEDDING IS ACCEPTABLE FOR INITIAL BACKFILL.
- CASING SPACERS SHALL BE SINGLE UNITS CONFIGURED TO CENTER THE SEWER WITHIN THE CASING PIPE AS SHOWN TO PROVIDE A MAXIMUM OF 3/4-INCH CLEARANCE TO THE TOP OF THE CASING PIPE. CASING SPACERS SHALL BE INJECTED MOLDED POLYETHYLENE SPACERS AS MANUFACTURED BY ADVANCED PRODUCTS AND SYSTEMS, INC., OR EQUAL.
- COVER END OPENINGS OF STEEL CASINGS WITH ELASTOMERIC BODY END SEALS WITH STAINLESS STEEL BANDS AND CLAMPS. END SEALS SHALL BE MANUFACTURED BY ADVANCED PRODUCTS AND SYSTEMS, INC., OR EQUAL.
- STEEL CASING PIPE SHALL BE BITUMINOUS COATED BOTH INSIDE AND OUTSIDE.
- A JOINT SHALL BE PROVIDED IN THE PVC PIPE A MAXIMUM OF 2'-0" BEYOND EACH END OF STEEL CASING.
- STEEL CASING PIPE SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS.
- SEE 'CONSTRUCTION PLAN' AND 'UTILITY PLAN' FOR ADDITIONAL LIMITS CLARIFICATION.

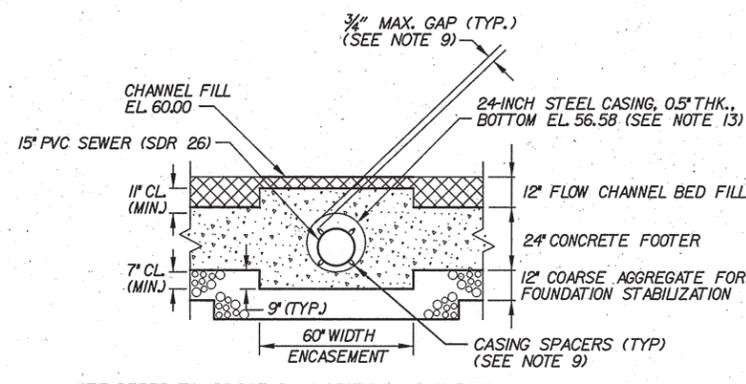
**TRENCH DETAILS**

NOT TO SCALE



**STEEL PIPE CASING  
BEYOND STRUCTURE**

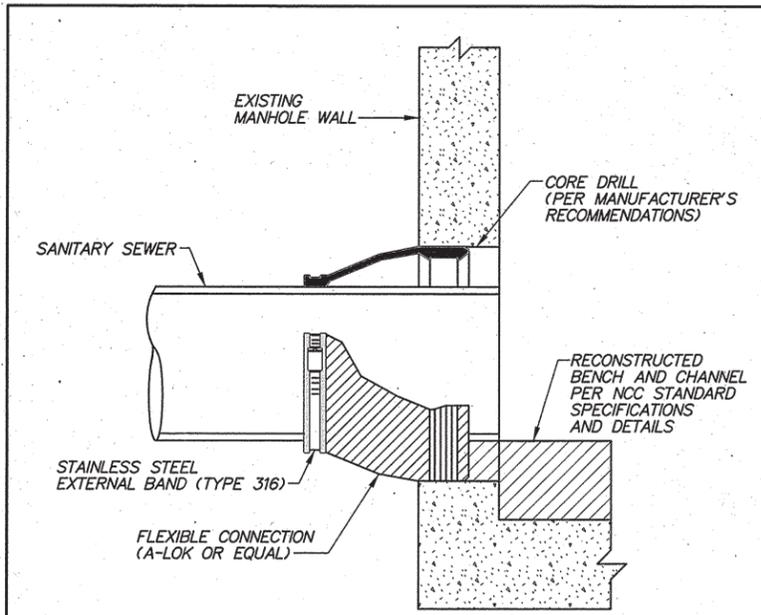
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STA. 2+26.72 TO STA. 2+37.55  
STA. 2+55.89 TO STA. 2+66.72



**STEEL PIPE CASING  
THROUGH STRUCTURE**

NOT TO SCALE

NOTE: REFER TO 'BRIDGE PLAN, SECTION AND ELEVATION' SHEET FOR ADDITIONAL FLOW CHANNEL STABILIZATION DETAIL.



**PIPE TO EXISTING MANHOLE  
FLEXIBLE CONNECTION DETAIL**

NOT TO SCALE

**GENERAL UTILITY (SEWER) NOTES:**

- SANITARY SEWERS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE MOST RECENT NEW CASTLE COUNTY STANDARD SPECIFICATIONS FOR CONSTRUCTION, SPECIAL PROVISIONS, SUPPLEMENTAL SPECIFICATIONS, STANDARD DETAILS, AND THE RECOMMENDED STANDARDS FOR WASTEWATER FACILITIES OR STRICTER STANDARDS IDENTIFIED BY THE ENGINEER.
- THE CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN APPROVAL AND ACCEPTANCE OF THE SANITARY SEWER SYSTEM BY NEW CASTLE COUNTY UPON COMPLETION OF CONSTRUCTION. AS-BUILT PLANS, SIGNED AND SEALED BY A PROFESSIONAL LAND SURVEYOR OR PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF DELAWARE, MUST BE SUBMITTED TO NEW CASTLE COUNTY BEFORE ACCEPTANCE.
- TYPICAL SEQUENCE OF CONSTRUCTION:
  - CONTACT NEW CASTLE COUNTY DEPARTMENT OF SPECIAL SERVICES (48 HOURS NOTICE AT 395-5756) PRIOR TO ANY EXCAVATION OR ACTIVITY INVOLVING SEWER CONSTRUCTION, PUMP STATION CONSTRUCTION OR LATERAL TIE-INS TO EXISTING LINES.
  - START BYPASS PUMPING PER BYPASS PUMPING NOTES AND PLANS ON SHEET 19.
  - CONSTRUCT PROPOSED SANITARY SEWER SYSTEM AS APPROVED BY NEW CASTLE COUNTY.
  - BACKFILL AND RE-GRADE AS REQUIRED.
  - PERFORM AIR TEST, IF REQUIRED, IN ACCORDANCE WITH SECTION 32.01-3 OF THE NEW CASTLE COUNTY STANDARD SPECIFICATIONS FOR CONSTRUCTION, IN THE PRESENCE OF A NEW CASTLE COUNTY INSPECTOR.
  - END BYPASS PUMPING.
  - FOLLOWING A PASSING AIR TEST (IF APPLICABLE), A FINAL VISUAL INSPECTION (LAMP TEST) MUST BE PERFORMED PRIOR TO ACCEPTANCE BY NEW CASTLE COUNTY.
  - BASED UPON THE RESULTS OF THE VISUAL INSPECTION, A MANDRAL TEST MAY BE REQUIRED FOLLOWING THE VISUAL INSPECTION.
- PRIOR TO NEW CASTLE COUNTY MAKING A FINAL INSPECTION, THE FOLLOWING ITEMS MUST BE COMPLETED:
  - ALL MANHOLES MUST BE BROUGHT TO GRADE AND HAVE CONCRETE COLLARS INSTALLED.
  - ALL MANHOLES AND SEWER PIPES MUST BE CLEANED AND FLUSHED.
- AS-BUILT DRAWINGS (SIGNED AND SEALED BY A REGISTERED LAND SURVEYOR OR PROFESSIONAL ENGINEER IN DELAWARE) WITH ONE (1) MYLAR AND THREE (3) SETS OF PRINTS MUST BE SUBMITTED TO NEW CASTLE COUNTY. THE FIELD ENGINEER SHALL CONTACT MR. CHUCK RUTTER AT (302) 395-5756 TO COORDINATE SUBMITTAL OF AS-BUILT DRAWINGS.

The sanitary sewer design concept has been reviewed and approved for compliance with the New Castle County Standard Specifications and the Ten State Standards. This review and approval is limited solely to the issue of compliance with the aforementioned standards and specifications, and New Castle County shall not be responsible for any other aspect or matter related to the design or installation of the proposed sanitary sewer.

*Alle 1/20/12*

PREPARED BY  
THE CONSULTING FIRM OF  
**WR&A**  
WHITMAN, REQUARDT & ASSOCIATES, LLP  
ENGINEERS - ARCHITECTS - PLANNERS



RECOMMENDED: *JM*  
SEAL: *1/20/12*  
DATE

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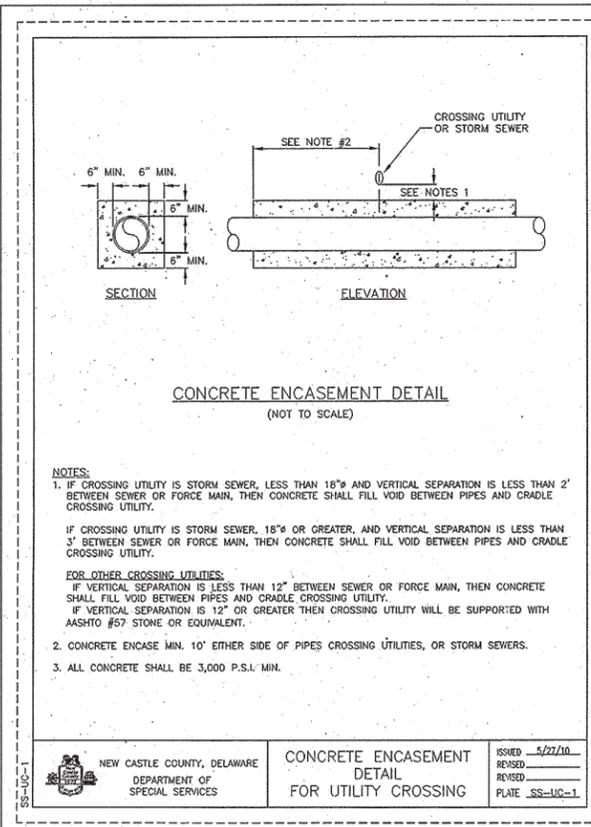
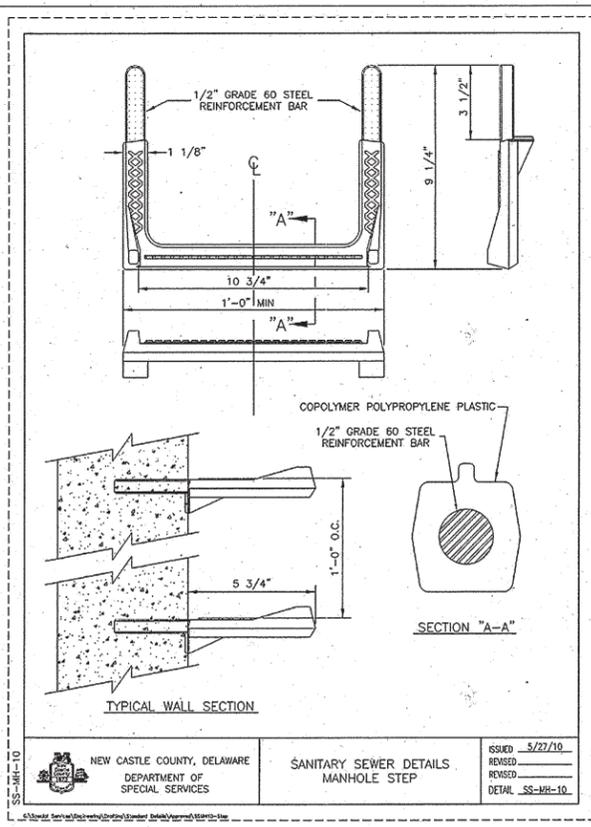
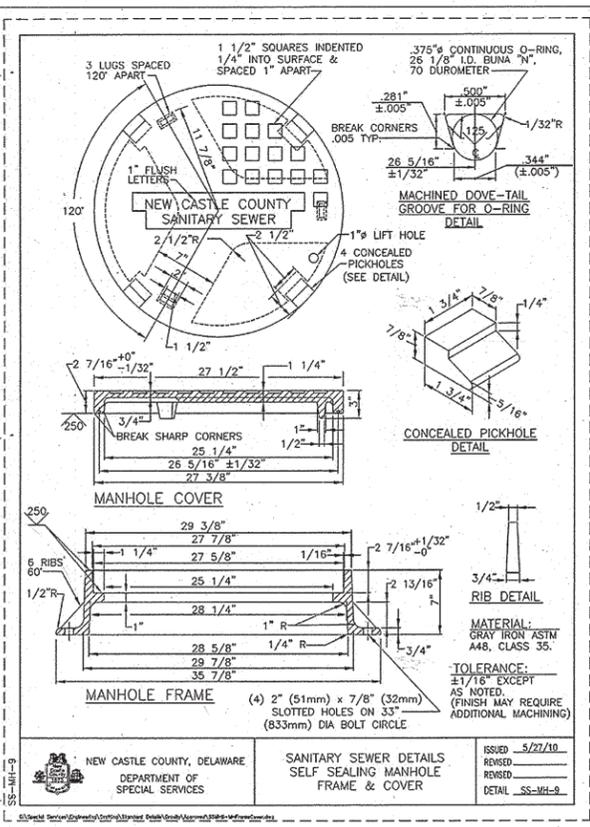
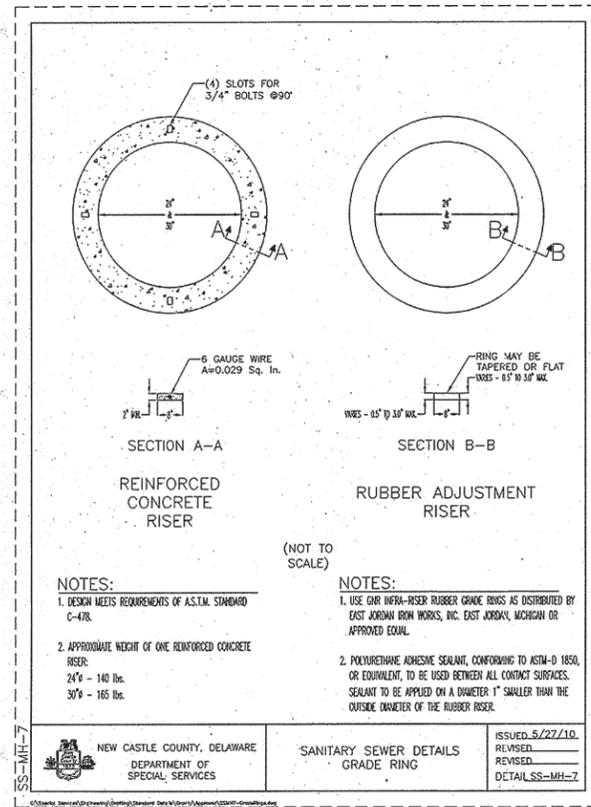
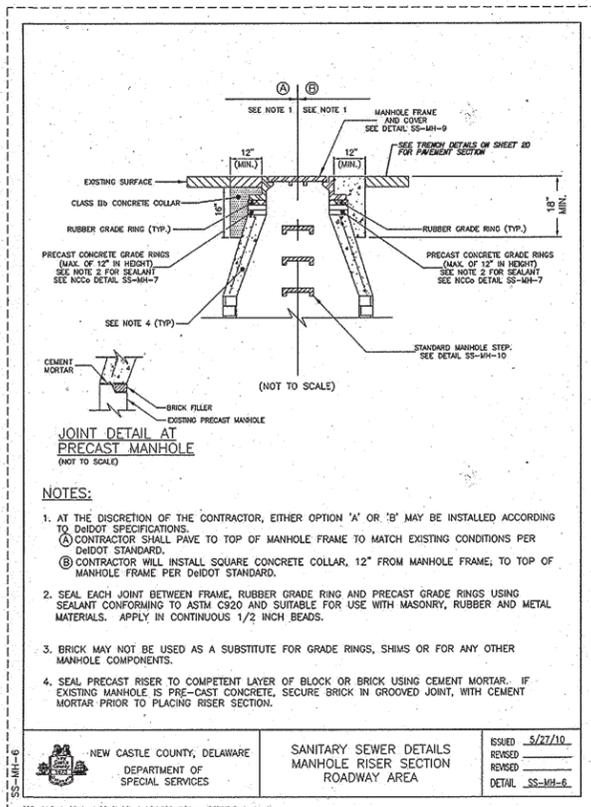
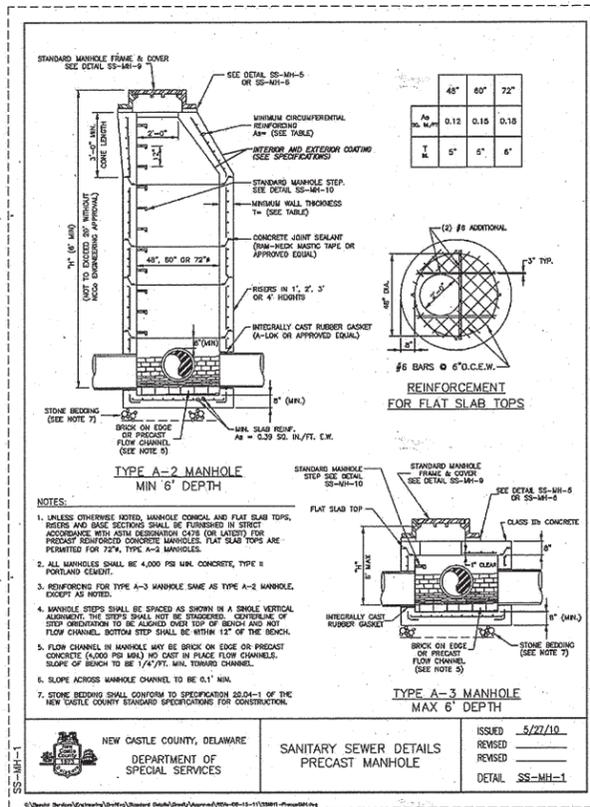
ADDENDUMS / REVISIONS

NOT TO SCALE

**BRIDGE 1-330 ON N351  
MARROWS ROAD OVER  
COOL RUN**

CONTRACT	BRIDGE NO.	1-330
T200707104	DESIGNED BY:	B.S.S.
COUNTY	CHECKED BY:	J.M.M.
NEW CASTLE		

<b>N.C.C. SEWER RELOCATION DETAILS (SHEET 2 OF 3)</b>	SHEET NO.	20
	TOTAL SHTS.	24



The sanitary sewer design concept has been reviewed and approved for compliance with the New Castle County Standard Specifications and the Ten State Standards. This review and approval is limited solely to the issue of compliance with the aforementioned standards and specifications, and New Castle County shall not be responsible for any other aspect or matter related to the design or installation of the proposed sanitary sewer.

*Dale H. 1-20-12*

PREPARED BY THE CONSULTING FIRM OF

**WR&A**

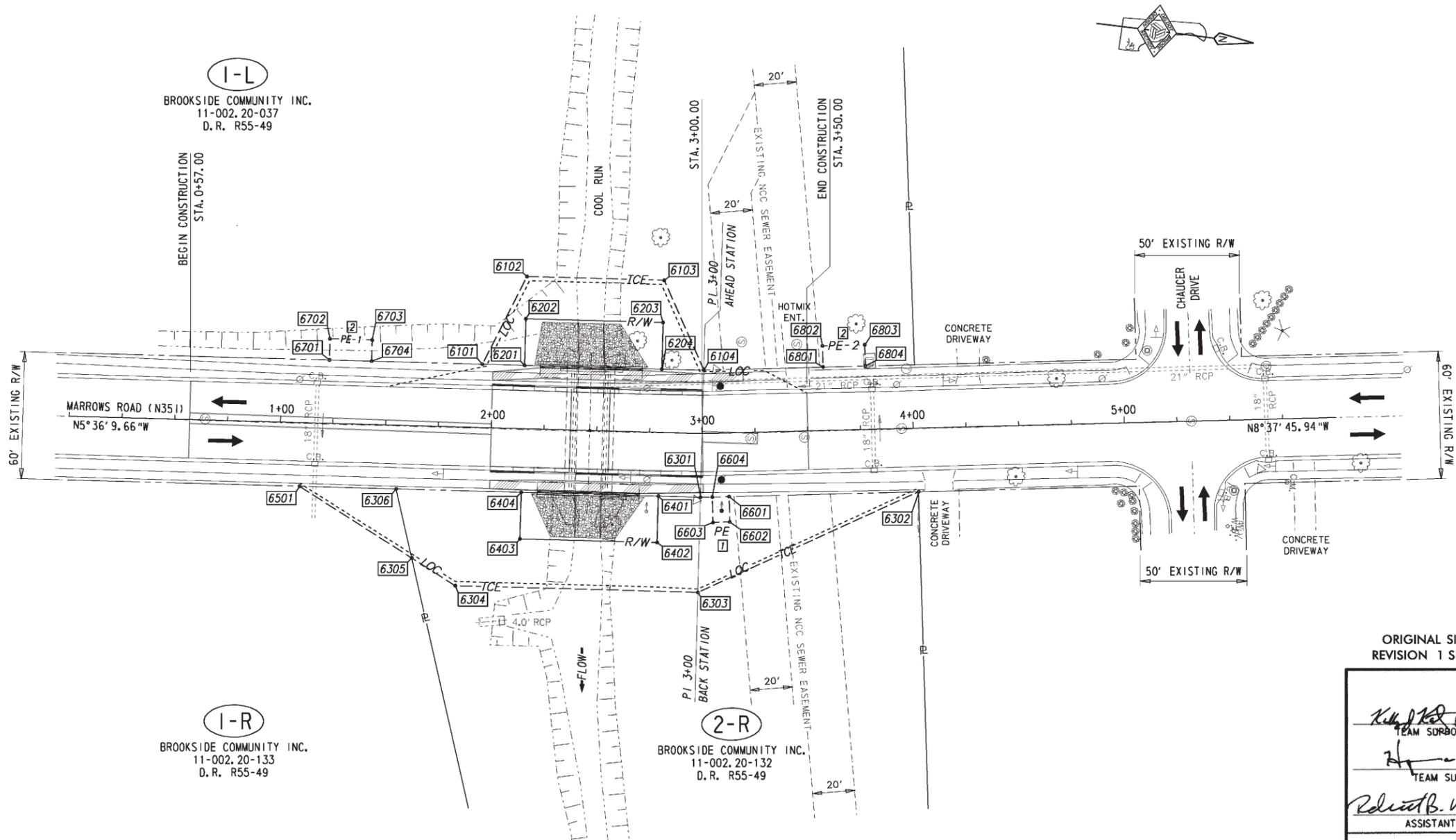
WHITMAN, REARDT & ASSOCIATES, LLP  
ENGINEERS-ARCHITECTS-PLANNERS EST. 1915

JOSEPH STEPHEN MAZUR  
No. 7974  
PROFESSIONAL ENGINEER

RECOMMENDED *JM*

DATE: 1/1/12

P:\315898-012\cadd\ut04.dgn 1/15/2012 10:40:34 AM



**1-L**  
 BROOKSIDE COMMUNITY INC.  
 11-002, 20-037  
 D. R. R55-49

**1-R**  
 BROOKSIDE COMMUNITY INC.  
 11-002, 20-133  
 D. R. R55-49

**2-R**  
 BROOKSIDE COMMUNITY INC.  
 11-002, 20-132  
 D. R. R55-49

ORIGINAL SIGNATURE DATE: AUGUST 24, 2011  
 REVISION 1 SIGNATURE DATE: OCTOBER 28, 2011

**RECOMMENDED**

*Kelly J. Kelly / Shelby Chandler* 1/17/2012  
 TEAM SUPPORT SQUAD MANAGER DATE

*James D. ...* 1.17.2012  
 TEAM SUPPORT ENGINEER DATE

*Robert B. McCloskey* 1/17/2012  
 ASSISTANT DIRECTOR, DESIGN DATE

**"AS-ACQUIRED" PLANS**

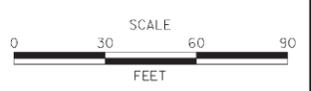
I Certify that all proposed Right-of-Way has been acquired in the name of THE STATE OF DELAWARE and that these plans accurately depict the nature and extent of THE REAL ESTATE SECTION acquisition under this project.

CHIEF, REAL ESTATE DATE

NOTE: THIS SHEET SHALL BE USED FOR RIGHT-OF-WAY ACQUISITION PURPOSES ONLY.



ADDENDUMS / REVISIONS	
1	ADD 'PE' FOR RELOCATED DP&L POLE TO PARCEL 2-R -J. B. 10/26/11
2	ADD 2 - 'PE' FOR RELOCATED VERIZON U/G MH TO PARCEL 1-L -J. B. 12/28/11



**BRIDGE 1-330 ON N351 MARROWS ROAD OVER COOL RUN**

CONTRACT	BRIDGE NO.	<b>1-330</b>
T200707104	DESIGNED BY:	JB
COUNTY	CHECKED BY:	
NEW CASTLE		

**RIGHT OF WAY PLAN SHEET 1 OF 3**

SHEET NO.	22
TOTAL SHTS.	24

Y:\NEWCASTLE\351\BRIDGE\2707104\PLANS\CP.DGN

ASSESSMENT NUMBER	OWNERSHIP OF RECORD	TYPE OF ACQUISITION	TITLE SOURCE	PARCEL AREA (ACRES)							
11-002.20-037	(1-L) BROOKSIDE COMMUNITY INC.	FEE	D.R. R55-49	10.220							
ALIGNMENT NUMBER & DESCRIPTION: 3000 - BASELINE											
PT. NO.	ALIGN. NO.	STATION	OFFSET *	NORTH	EAST	BEARING	DISTANCE	CHORD BEARING	CHORD LENGTH	ARC LENGTH	RADIUS **
6201	3000	2+15.00	-30.00	608422.7521	568610.4116	S 84°23' 50.34" W	22.0000				
6202	3000	2+15.00	-52.00	608420.6043	568588.5167	N 5°36' 09.66" W	65.0000				
6203	3000	2+80.00	-52.00	608485.2938	568582.1708	N 84°23' 50.34" E	22.0000				
6204	3000	2+80.00	-30.00	608487.4416	568604.0657	S 5°36' 09.66" E	65.0000				
6201	3000	2+15.00	-30.00	608422.7521	568610.4116						

FIGURE 6110 AREA = 1430.0000 SQ. FT. (0.0328 ACRES)

ASSESSMENT NUMBER	OWNERSHIP OF RECORD	TYPE OF ACQUISITION	TITLE SOURCE	PARCEL AREA (ACRES)							
11-002.20-037	(1-L) BROOKSIDE COMMUNITY INC.	P/E-1 [2]	D.R. R55-49	10.220							
ALIGNMENT NUMBER & DESCRIPTION: 3000 - BASELINE											
PT. NO.	ALIGN. NO.	STATION	OFFSET *	NORTH	EAST	BEARING	DISTANCE	CHORD BEARING	CHORD LENGTH	ARC LENGTH	RADIUS **
6701	3000	1+22.50	-30.00	608330.6940	568619.4423	S 84°23' 50.34" W	10.0000				
6702	3000	1+22.50	-40.00	608329.7177	568609.4901	N 5°36' 09.66" W	20.0000				
6703	3000	1+42.50	-40.00	608349.6222	568607.5375	N 84°23' 50.34" E	10.0000				
6704	3000	1+42.50	-30.00	608350.5985	568617.4897	S 5°36' 09.66" E	20.0000				
6701	3000	1+22.50	-30.00	608330.6940	568619.4423						

FIGURE 6710 AREA = 200.0000 SQ. FT. (0.0046 ACRES)

ASSESSMENT NUMBER	OWNERSHIP OF RECORD	TYPE OF ACQUISITION	TITLE SOURCE	PARCEL AREA (ACRES)							
11-002.20-037	(1-L) BROOKSIDE COMMUNITY INC.	P/E-2 [2]	D.R. R55-49	10.220							
ALIGNMENT NUMBER & DESCRIPTION: 3000 - BASELINE											
PT. NO.	ALIGN. NO.	STATION	OFFSET *	NORTH	EAST	BEARING	DISTANCE	CHORD BEARING	CHORD LENGTH	ARC LENGTH	RADIUS **
6801	3000	3+58.00	-30.00	608563.1171	568593.6069	S 81°22' 14.06" W	10.0000				
6802	3000	3+58.00	-40.00	608561.6166	568583.7201	N 8°37' 45.94" W	20.0000				
6803	3000	3+78.00	-40.00	608581.3902	568580.7192	N 81°22' 14.06" E	10.0000				
6804	3000	3+78.00	-30.00	608582.8907	568590.6060	S 8°37' 45.94" E	20.0000				
6801	3000	3+58.00	-30.00	608563.1171	568593.6069						

FIGURE 6810 AREA = 200.0000 SQ. FT. (0.0046 ACRES)

ASSESSMENT NUMBER	OWNERSHIP OF RECORD	TYPE OF ACQUISITION	TITLE SOURCE	PARCEL AREA (ACRES)							
11-002.20-037	(1-L) BROOKSIDE COMMUNITY INC.	TCE	D.R. R55-49	10.220							
ALIGNMENT NUMBER & DESCRIPTION: 3000 - BASELINE											
PT. NO.	ALIGN. NO.	STATION	OFFSET *	NORTH	EAST	BEARING	DISTANCE	CHORD BEARING	CHORD LENGTH	ARC LENGTH	RADIUS **
6101	3000	1+95.00	-30.00	608402.8477	568612.3642	N 70°08' 21.62" W	46.5188				
6102	3000	2+15.00	-72.00	608418.6517	568568.6122	N 5°36' 09.66" W	65.0000				
6103	3000	2+80.00	-72.00	608483.3412	568562.2663	N 58°56' 02.30" E	46.5188				
6104	3000 (B/S)	3+00.00	-30.00	608507.3461	568602.1131	S 5°36' 09.66" E	20.0000				
6204	3000	2+80.00	-30.00	608487.4416	568604.0657	S 84°23' 50.34" W	22.0000				
6203	3000	2+80.00	-52.00	608485.2938	568582.1708	S 5°36' 09.66" E	65.0000				
6202	3000	2+15.00	-52.00	608420.6043	568588.5167	N 84°23' 50.34" E	22.0000				
6201	3000	2+15.00	-30.00	608422.7521	568610.4116	S 5°36' 09.66" E	20.0000				
6101	3000	1+95.00	-30.00	608402.8477	568612.3642						

FIGURE 6210 AREA = 2140.0000 SQ. FT. (0.0491 ACRES)

NOTE: (B/S) DENOTES 'BACK STATION'

ASSESSMENT NUMBER	OWNERSHIP OF RECORD	TYPE OF ACQUISITION	TITLE SOURCE	PARCEL AREA (ACRES)							
11-002.20-133	(1-R) BROOKSIDE COMMUNITY INC.	TCE	D.R. R55-49	3.420							
ALIGNMENT NUMBER & DESCRIPTION: 3000 - BASELINE											
PT. NO.	ALIGN. NO.	STATION	OFFSET *	NORTH	EAST	BEARING	DISTANCE	CHORD BEARING	CHORD LENGTH	ARC LENGTH	RADIUS **
6306	3000	1+55.77	30.00	608369.6629	568675.9076	N 70°02' 00.02" E	33.4971				
6305	3000	1+64.08	62.45	608381.1012	568707.3912	S 25°21' 45.47" W	63.0686				
6501	3000	1+10.00	30.00	608324.1115	568680.3761	N 5°36' 09.66" W	45.7700				
6306	3000	1+55.77	30.00	608369.6629	568675.9076						

FIGURE 6310 AREA = 742.6183 SQ. FT. (0.0170 ACRES)

ASSESSMENT NUMBER	OWNERSHIP OF RECORD	TYPE OF ACQUISITION	TITLE SOURCE	PARCEL AREA (ACRES)							
11-002.20-132	(2-R) BROOKSIDE COMMUNITY INC.	FEE	D.R. R55-49	11.300							
ALIGNMENT NUMBER & DESCRIPTION: 3000 - BASELINE											
PT. NO.	ALIGN. NO.	STATION	OFFSET *	NORTH	EAST	BEARING	DISTANCE	CHORD BEARING	CHORD LENGTH	ARC LENGTH	RADIUS **
6401	3000	2+80.00	30.00	608493.2994	568663.7790	N 84°23' 50.34" E	22.0000				
6402	3000	2+80.00	52.00	608495.4472	568685.6739	S 5°36' 09.66" E	65.0000				
6403	3000	2+15.00	52.00	608430.7578	568692.0199	S 84°23' 50.34" W	22.0000				
6404	3000	2+15.00	30.00	608428.6099	568670.1250	N 5°36' 09.66" W	65.0000				
6401	3000	2+80.00	30.00	608493.2994	568663.7790						

FIGURE 6410 AREA = 1430.0000 SQ. FT. (0.0328 ACRES)

ASSESSMENT NUMBER	OWNERSHIP OF RECORD	TYPE OF ACQUISITION	TITLE SOURCE	PARCEL AREA (ACRES)							
11-002.20-132	(2-R) BROOKSIDE COMMUNITY INC.	P/E [7]	D.R. R55-49	11.300							
ALIGNMENT NUMBER & DESCRIPTION: 3000 - BASELINE											
PT. NO.	ALIGN. NO.	STATION	OFFSET *	NORTH	EAST	BEARING	DISTANCE	CHORD BEARING	CHORD LENGTH	ARC LENGTH	RADIUS **
6601	3000	3+12.00	30.00	608526.6404	568659.8296	N 81°22' 14.06" E	12.0000				
6602	3000	3+12.00	42.00	608528.4409	568671.6938	S 8°37' 45.94" E	8.0000				
6603	3000	3+04.00	42.00	608520.5315	568672.8941	S 81°22' 14.06" W	12.0000				
6604	3000	3+04.00	30.00	608518.7310	568661.0300	N 8°37' 45.94" W	8.0000				
6601	3000	3+12.00	30.00	608526.6404	568659.8296						

FIGURE 6610 AREA = 96.0000 SQ. FT. (0.0022 ACRES)

ASSESSMENT NUMBER	OWNERSHIP OF RECORD	TYPE OF ACQUISITION	TITLE SOURCE	PARCEL AREA (ACRES)							
11-002.20-132	(2-R) BROOKSIDE COMMUNITY INC.	TCE [7]	D.R. R55-49	11.300							
ALIGNMENT NUMBER & DESCRIPTION: 3000 - BASELINE											
PT. NO.	ALIGN. NO.	STATION	OFFSET *	NORTH	EAST	BEARING	DISTANCE	CHORD BEARING	CHORD LENGTH	ARC LENGTH	RADIUS **
6301	3000	(B/S) 3+00.00	30.00	608513.2039	568661.8264	N 81°02' 00.10" W	5.5842				
6604	3000	3+04.00	30.00	608518.7310	568661.0300	N 81°22' 14.06" E	12.0000				
6603	3000	3+04.00	42.00	608520.5315	568672.8941	N 8°37' 45.94" W	8.0000				
6602	3000	3+12.00	42.00	608528.4409	568671.6938	S 81°22' 14.06" W	12.0000				
6601	3000	3+12.00	30.00	608526.6404	568659.8296	N 8°37' 45.94" W	89.7900				
6302	3000	4+01.79	30.00	608615.4139	568646.3573	S 31°37' 57.67" E	114.8856				
6303	3000	(B/S) 3+00.00	75.00	608517.5972	568706.6115	S 5°36' 09.66" E	115.0000				
6304	3000	1+85.00	75.00	608403.1466	568717.8389	S 25°21' 25.36" W	24.3957				
6305	3000	1+64.08	62.45	608381.1012	568707.3912	S 70°02' 00.02" W	33.4971				
6304	3000	1+55.77	30.00	608369.6629	568675.9076	N 5°36' 09.66" W	59.2300				
6404	3000	2+15.00	30.00	608428.6099	568670.1250	N 84°23' 50.34" E	22.0000				
6403	3000	2+15.00	52.00	608430.7578	568692.0199	N 5°36' 09.66" W	65.0000				
6402	3000	2+80.00	52.00	608495.4472	568685.6739	S 84°23' 50.34" W	22.0000				
6401	3000	2+80.00	30.00	608493.2994	568663.7790	N 5°36' 09.66" W	20.0000				
6301	3000	(B/S) 3+00.00	30.00	608513.2039	568661.8264						

FIGURE 6510 AREA = 6914.6319 SQ. FT. (0.1587 ACRES)

NOTE: (B/S) DENOTES 'BACK STATION'

ADDENDUMS / REVISIONS

- [1] ADD 'PE' FOR RELOCATED DP&L POLE TO PARCEL 2-R & SUBTRACT NEW 2-R PE FROM 2-R TCE -J.B. 10/26/11
- [2] ADD 2 - 'PE' FOR RELOCATED VERIZON U/G MH TO PARCEL 1-L -J.B. 12/28/11



BRIDGE 1-330 ON N351 MARROWS ROAD OVER COOL RUN

CONTRACT	BRIDGE NO.	1-330
T200707104	DESIGNED BY:	jb
COUNTY	CHECKED BY:	jb
NEW CASTLE		

LEGEND	
FEE	AREA OF ACQUISITION
RW	AREA OCCUPIED BY EXISTING RW
PE	PERMANENT EASEMENT
TCE	TEMPORARY CONSTRUCTION EASEMENT
*	OFFSET IS LEFT OF BASELINE
**	CURVE TURNS TO THE LEFT

RIGHT-OF-WAY DATA SHEET SHEET 2 OF 3	SHEET NO. 23
	TOTAL SHTS. 24

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