Appendix E. Engineering Drawings
(Part 8 of 10)

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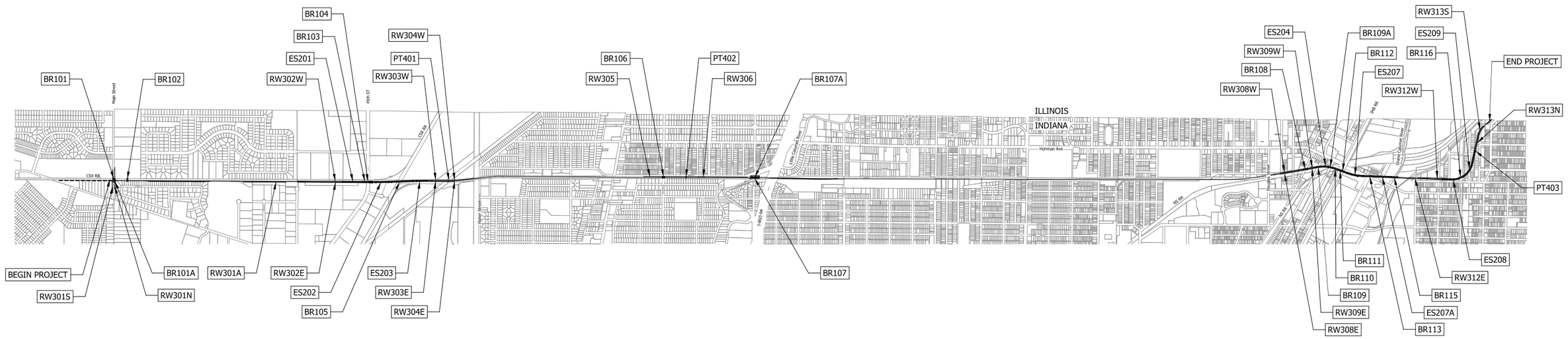
NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT

WEST LAKE CORRIDOR
MILEPOST WL 61.38 TO MILEPOST WL 69.18
DYER TO HAMMOND, INDIANA

STRUCTURAL PLANS



PROJECT MAP
Not to Scale

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES STGN-01 OF STGN-09

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33 East Highway 12
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DYER TO HAMMOND, INDIANA

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DRAWN:	
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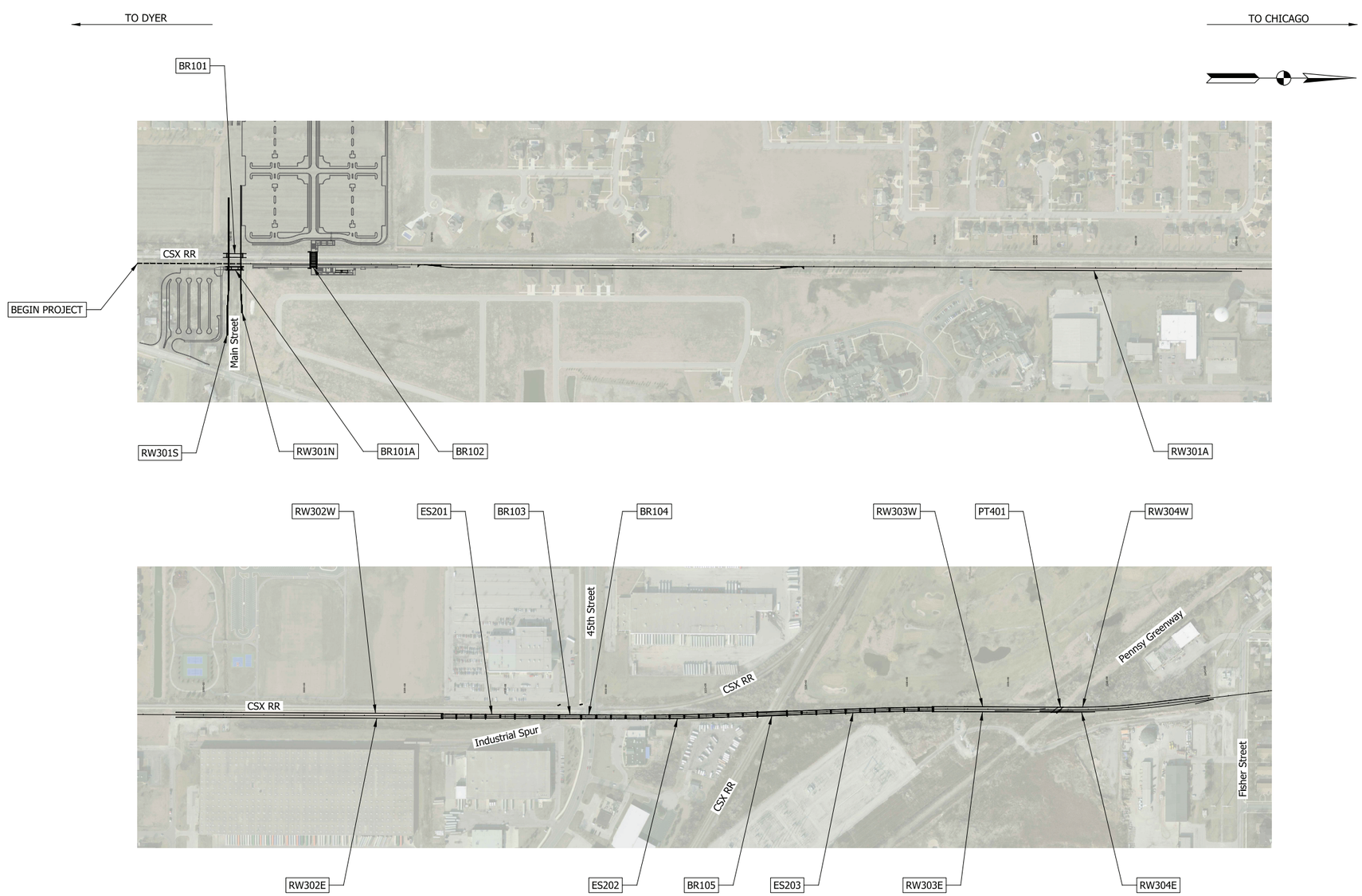
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

COVER SHEET

FILENAME	SHT_WL_ST_GEN_CovSht_01.dgn	SHEET 1 OF 218
SCALE	AS NOTED	



LOCATION PLAN
Not to Scale

PRELIMINARY PLANS
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SERIES STGN-02 OF STGN-09

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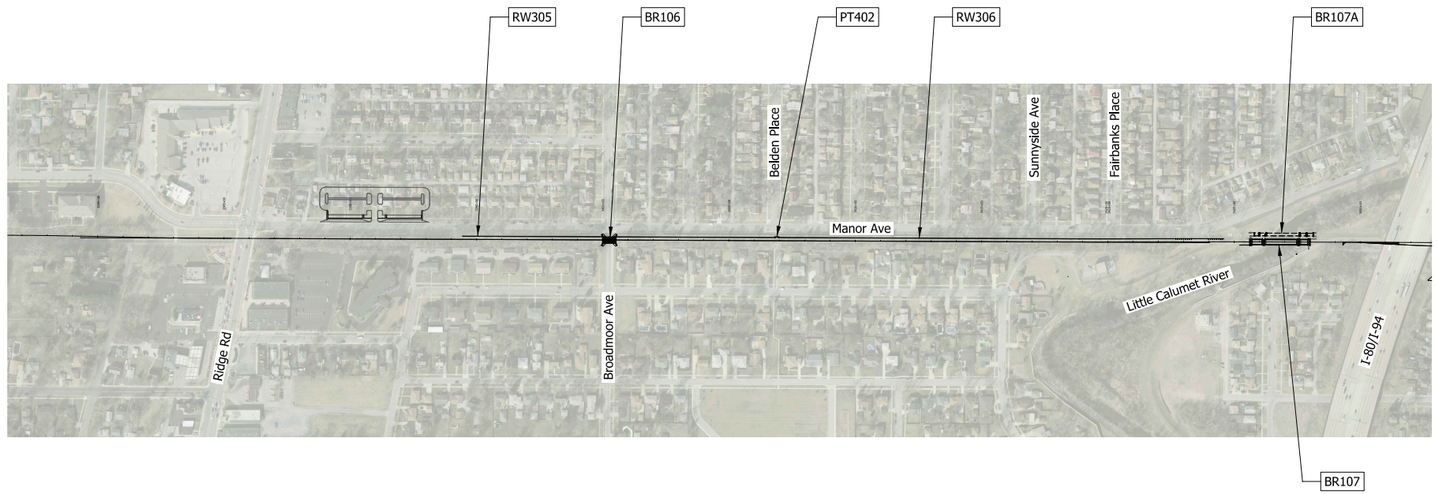
LOCATION PLAN (1 OF 3)

FILENAME	SHT_WL_ST_GEN_LocPlan_01.dgn
SCALE	AS NOTED

SHEET **2 OF 218**

TO DYER

TO CHICAGO



LOCATION PLAN
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PRELIMINARY PLANS
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SERIES STGN-03 OF STGN-09

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LOCATION PLAN (2 OF 3)

FILENAME	SHT_WL_ST_GEN_LocPlan_02.dgn
SCALE	AS NOTED

SHEET **3 OF 218**

TO DYER

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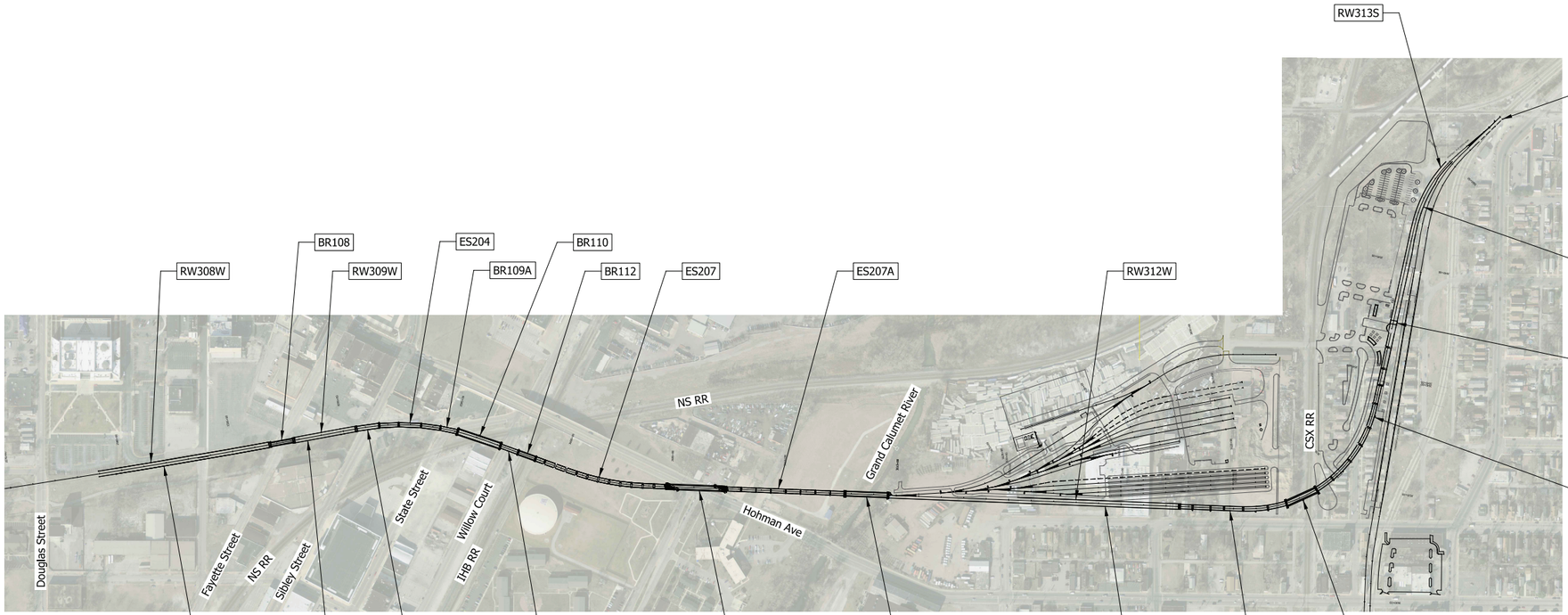

LOCATION PLAN
Not to Scale

PRELIMINARY PLANS

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SERIES STGN-04 OF STGN-09

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LOCATION PLAN (3 OF 3)

FILENAME	SHT_WL_ST_GEN_LocPlan_03.dgn
SCALE	AS NOTED

SHEET **4 OF 218**

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PRELIMINARY PLANS

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NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
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SHEET INDEX

FILENAME	SHT_WL_ST_GEN_ShtList_01.dgn
SCALE	AS NOTED

SHEET **5 OF 218**

GENERAL NOTES:

DESIGN:

STRUCTURES ARE TO BE DESIGNED PER CURRENT EDITION OF THE AREMA MANUAL FOR RAILWAY ENGINEERING (AREMA MANUAL).

DESIGN CRITERIA:

DEAD LOAD:	SELF-WEIGHT OF STRUCTURE, WEIGHT OF RAIL AND FASTENINGS, BALLAST, DECK, WATERPROOFING, WALKWAY, AND OTHER MISCELLANEOUS FIXTURES
LIVE LOAD:	DESIGN OF ALL STRUCTURES SHALL SATISFY COOPER E50 LIVE LOAD, ALONG WITH PROVISIONS FOR PERIODIC SERVICE OF 263K WORK TRAINS WITH GP38 4-AXLE LOCOMOTIVES. COOPER E80 LIVE LOAD AND ALTERNATE LIVE LOAD AS APPROPRIATE SHALL BE SATISFIED ON ALL CSX BRIDGES
IMPACT:	IMPACT LOAD SHALL BE PER AREMA CHAPTERS 8 AND 15 AS APPLICABLE
FATIGUE:	PER AREMA 15-1.3.13 FATIGUE
WIND LOAD:	PER AREMA 8-2.2.3, 15-1.3.7 AND 15-1.3.8 AS REQUIRED

EXISTING CONDITIONS:

ALL DIMENSIONS OF EXISTING CONDITIONS TO BE VERIFIED BY THE CONTRACTOR

DESIGN STRESSES:

STRUCTURAL STEEL (ASTM A709, GR. 50 AND 50W)	Fy = 50,000 PSI
CAST-IN-PLACE CONCRETE (INDOT CLASS C)	F'c = 4000 PSI AT 28 DAYS
REINFORCEMENT STEEL (ASTM A615)	Fy = 60 KSI

CONTROL OF ALL WORK:

ALL WORK INVOLVED IN THE CONSTRUCTION OF THE RAILWAY STRUCTURE SHALL BE PERFORMED SATISFACTORY TO THE ENGINEER AND NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT (NICTD). ALL METHODS OF HANDLING WORK AFFECTING THE SAFETY OF RAIL OPERATIONS MUST BE APPROVED BY THE RAILWAY ENGINEER BEFORE PROCEEDING WITH THAT PORTION OF THE WORK. RAIL TRAFFIC SHALL AT ALL TIMES BE MAINTAINED AND PROTECTED. THE CONTRACTOR SHALL NOT AT ANY TIME DELAY OR INTERFERE WITH RAIL OPERATIONS.

CONSTRUCTION REQUIREMENTS:

ALL WORK SHALL BE IN ACCORDANCE WITH CURRENT AREMA "MANUAL FOR RAILWAY ENGINEERING" AND THE SPECIFICATIONS FOR THIS CONTRACT. THE CONTRACTOR SHALL NOT INTERFERE WITH OR PERFORM ANY CONSTRUCTION ON OR NEAR OPERATING TRACKS WITHOUT THE RAILROAD'S PERMISSION. WHEN THE CONTRACTOR IS WORKING NEAR ANY TRACK, HE WILL BE REQUIRED TO HAVE A FLAGMAN FROM THE RAILROAD ON DUTY. CONTRACTOR SHALL NOT SCALE DIMENSIONS FROM THE CONTRACT PLANS FOR CONSTRUCTION PURPOSES. SCALES ARE SHOWN FOR INFORMATION ONLY. NO CONSTRUCTION JOINTS, EXCEPT THOSE SHOWN ON THE PLANS, WILL BE ALLOWED UNLESS APPROVED BY THE ENGINEER.

STRUCTURAL STEEL NOTES:

GENERAL:

1. PRIOR TO FABRICATION, CONTRACTOR/FABRICATOR SHALL SUBMIT THE FOLLOWING FOR APPROVAL BY THE ENGINEER:
   - A. SHOP DRAWINGS INDICATING MATERIALS, SIZES, CONNECTIONS, ANCHORS, PAINTING (AS APPLICABLE), WELD PROCEDURES, AND CERTIFICATIONS.
   - B. PRODUCT DATA INCLUDING MANUFACTURER'S CATALOG SHEETS ON PRE-MANUFACTURED ITEMS.
2. DELIVERY, STORAGE, AND HANDLING:
   - A. TAG MISCELLANEOUS STEEL, FASTENERS, AND ACCESSORIES OR OTHERWISE MARK FOR EASE OF IDENTIFICATION AT PROJECT SITE.
   - B. CONTRACTOR IS RESPONSIBLE FOR SAFELY TRANSPORTING, STORING, AND HANDLING ALL MATERIALS. ALL MATERIALS SHALL BE PROTECTED FROM DAMAGE AND THEFT DURING ALL PHASES OF CONSTRUCTION.
3. STRUCTURAL STEEL:
   - A. STEEL FOR BRIDGE SUPERSTRUCTURE AND STEEL H-PILES, WITH THE EXCEPTION OF DECK PLATES, SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50W T2 UNLESS NOTED OTHERWISE. DECK PLATES SHALL CONFORM TO ASTM A709 GRADE 50 T2. FRACTURE CRITICAL MEMBERS AS DESCRIBED IN AREMA CHAPTER 15 PART 1.14 AND AS NOTED ON THE PLANS SHALL CONFORM TO ASTM A709 GRADE 50W F2.
   - B. FABRICATE DETAILS AND CONNECTION ASSEMBLIES IN ACCORDANCE WITH DRAWINGS AND SPECIFICATIONS, WITH PROJECTING CORNERS CLIPPED AND FILLER PIECES WELDED FLUSH.
   - C. ALL MATERIAL SHALL BE STRAIGHT AND FREE FROM SHARP KINKS OR BENDS. ANY STEEL MATERIAL EXHIBITING SUCH DEFICIENCIES SHALL BE CAUSE FOR THE REJECTION OF THE MATERIAL. STRAIGHTENING OF THE MATERIAL SHALL NOT BE ACCEPTABLE.
   - D. FIT WORK TOGETHER IN FABRICATION SHOP AND DELIVER COMPLETE OR IN PARTS, READY TO BE SET IN PLACE OR ASSEMBLED IN FIELD AS COORDINATED WITH THE CONTRACTOR.
   - E. STEEL SUPERSTRUCTURE IS NOT INTENDED TO BE PAINTED EXCEPT THE ENDS OF BEAMS OR GIRDERS SHALL BE PAINTED TO PREVENT STAINING OF THE CONCRETE SUBSTRUCTURE. ENDS OF BEAMS OR GIRDERS, UP TO FIVE FEET INTO THE SPAN SHALL BE PAINTED TO MATCH/BLEND INTO THE NATURAL COLOR OF THE STEEL. COLOR SAMPLE IS TO BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

STRUCTURAL STEEL NOTES (CONTINUED):

4. GALVANIZING FOR HANDRAIL AND WALKWAY:
   - A. GALVANIZE AFTER FABRICATION.
   - B. GALVANIZE BY HOT-DIP PROCESS CONFORMING WITH ASTM A123 AND AMERICAN GALVANIZERS ASSOCIATION RECOMMENDATIONS.
   - C. GALVANIZE IN PLANT HAVING FACILITIES TO PRODUCE QUALITY COATINGS AND CAPACITY FOR VOLUME OF WORK.
   - D. SHIP AND HANDLE MATERIAL TO AVOID DAMAGE TO ZINC COATING.
   - E. REPAIR GALVANIZED SURFACES DAMAGED DURING SHIPPING OR CONSTRUCTION OPERATIONS. REPAIR SURFACES ACCORDING TO ASTM A780 WITH ZINC-RICH PAINT. REPAIR PRODUCT IS TO BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
5. PLUMB AND TRUE VERTICAL AND HORIZONTAL MEMBERS TO TOLERANCE OF +/- 1/8" IN 10 FT.
6. PROVIDE SHIMS, BLOCKS, WEDGES, AND OTHER ITEMS AS NECESSARY TO COMPLETE INSTALLATION AT NO ADDITIONAL COST TO THE PROJECT.

WELDING:

ALL WELDING SHALL BE IN ACCORDANCE WITH CURRENT AREMA MANUAL AND THE PROJECT SPECIFICATIONS. WELDING IS TO BE IN ACCORDANCE WITH AMERICAN WELDING SOCIETY (A.W.S.) STRUCTURAL WELDING CODE D1.5, CURRENT ISSUE. ALL WELDS TO BE CONTINUOUS UNLESS OTHERWISE SHOWN. ALL WELDERS TO BE QUALIFIED IN ACCORDANCE WITH A.W.S. STRUCTURAL WELDING CODE OR OTHER REGULATIONS MEETING WITH THE APPROVAL OF THE ENGINEER. FIELD WELDS ARE TO BE MADE WITH E7018 LOW HYDROGEN ELECTRODES WITH ON-SITE PROTECTION AND USE OF ELECTRODE HEATING UNITS PER CURRENT A.W.S. SPECIFICATIONS.

1. CONFORM TO A.W.S. SPECIFICATIONS FOR ARC AND GAS WELDING IN BRIDGE CONSTRUCTION AND TO AISC SPECIFICATIONS. SURFACES TO BE WELDED SHALL BE FREE FROM LOOSE SCALE, RUST, GREASE, PAINT, AND OTHER FOREIGN MATERIAL, EXCEPT MILL SCALE WHICH WILL WITHSTAND VIGOROUS WIRE BRUSHING MAY REMAIN. NO WELDING SHALL BE DONE WHEN BASE METAL TEMPERATURE IS LOWER THAN 0°F.
2. QUALIFY WELDING OPERATORS IN ACCORDANCE WITH A.W.S. D1.5. QUALIFICATION TESTS SHALL BE RUN BY RECOGNIZED TESTING LABORATORY APPROVED BY THE ENGINEER AT THE CONTRACTOR'S EXPENSE.
3. WELDING OPERATORS SHALL BE SUBJECT TO EXAMINATION FOR REQUALIFICATION USING EQUIPMENT, MATERIALS, AND ELECTRODES EMPLOYED IN EXECUTION OF WORK. SUCH REQUALIFICATION, IF ORDERED BY THE ENGINEER, SHALL BE DONE AT CONTRACTOR'S EXPENSE.
4. GRIND EXPOSED EDGES OF WELDS TO 1/8" MINIMUM RADIUS. GRIND BURRS, JAGGED EDGES, AND SURFACE DEFECTS SMOOTH.
5. PREPARE WELDS AND ADJACENT AREAS SO THERE IS:
   - A. NO UNDERCUTTING OR REVERSE RIDGES ON WELD BEAD.
   - B. NO WELD SPATTER ON OR ADJACENT TO WELD OR OTHER AREA TO BE PAINTED OR COATED.
   - C. NO SHARP PEAKS OR RIDGES ALONG WELD BEAD.
6. GRIND EMBEDDED PIECES OF ELECTRODE OR WIRE FLUSH WITH ADJACENT SURFACE OF WELD BEAD.

BOLTS:

1. SUPERSTRUCTURE CONNECTION BOLTS SHALL BE ASTM F3125 GRADE A325, MINIMUM 7/8" IN DIAMETER, AND THE BOLT TYPE SHALL BE CONSISTENT WITH THE MATERIAL BEING CONNECTED.
2. ALL OTHER STEEL-TO-STEEL CONNECTION BOLTS SHALL BE ASTM F3125 GRADE A325 MINIMUM ¾".
3. ANY BOLTS THAT REQUIRE REMOVAL AFTER BEING TIGHTENED TO THEIR PROOF LOAD SHALL BE DISCARDED AND A NEW BOLT SHALL BE INSTALLED.
4. ALL BOLT HOLES SHALL BE SUB-DRILLED AND REAMED OR DRILLED FROM THE SOLID. AT NO TIME ARE HOLES TO BE SUB-PUNCHED AND REAMED OR PUNCHED FULL SIZE. ALL HOLES SHALL BE 1/16" LARGER THAN THE SPECIFIED BOLT SIZE UNLESS NOTED OTHERWISE.
5. DRILL FIELD HOLES FOR BOLTS. DO NOT BURN HOLES. NEW OR ENLARGING HOLES BY USE OF CUTTING TORCH IS CAUSE FOR REJECTION OF ENTIRE MEMBER.
6. ALL SHOP BOLTS ARE TO BE INCLUDED IN FABRICATION. BOLTS FOR FIELD ERECTION SHALL BE SUPPLIED BY THE FABRICATOR.

STANDARD ABBREVIATIONS

Abut.	Abutment	NIC	Not In Contract
Approx.	Approximate	N.T.S.	Not To Scale
B	Bottom	No.	Number
Bldg	Building	OHP	Overhead Power
Bm	Bench Mark	PC	Point Of Curve
Brg.	Bearing	PI	Point Of Intersection
CB	Catch Basin	PITO	Point Of Intersection Of Turnout
℄	Centerline	POB	Point Of Beginning
Clr.	Clearance	POE	Point Of Ending
CMP	Corrugated Metal Pipe	POTO	Power Operated Turnout
CN	Canadian National	Pr, Prop	Proposed
Conc.	Concrete	P.S.	Point Of Switch
Cs	Curve To Spiral	PT	Point Of Tangency, Point
CSS	Chicago South Shore	PVC	Point Of Vertical Curve
CSX	Csx Railroad	PVI	Point Of Vertical Intersection
CWR	Continuously Welded Rail	PVT	Point Of Vertical Tangency
CY	Cubic Yard	R	Radius
DC	Degree Of Curve	Rd	Road
DI	Ductile Iron	RE	Railway Engineered, Arema Approved Rail Section
Dia.	Diameter	Rev.	Revision
DOT	Department Of Transportation	RH	Right Hand
Dwg	Drawing	RR	Railroad
E	Easting	Rt	Right
Ea	Each	R/W, R.O.W.	Right-Of-Way
El.	Elevation	S	South
Engr	Engineer	SC	Spiral To Curve
Elev., El.	Elevation	SD	Storm Drain
Exist., Ex.	Existing	SE	Super Elevation
Exp.	Expansion	SF	Square Foot
FFBW	Front Face of Backwall	Shld.	Shoulder
Ftg	Footing	SS	Sanitary Sewer
Ft	Foot, Feet	Sta.	Station
G	Gas	ST	Street, Spiral To Tangent
Gnd	Ground	Std.	Standard
HDPE	High Density Polyethylene	Stm, Sd	Storm Sewer, Storm Drain
Horiz.	Horizontal	SW	Switch
HTTO	Hand Throw Turnout	T	Top
HMA	Hot Mix Asphalt	Temp.	Temporary
Inv.	Invert	TF	Track Foot, Track Feet
LC	Length Of Curve	T.O.	Turnout
LH	Left Hand	TOR	Top Of Rail
LS	Length Of Spiral	TPG	Through Plate Girder
Lin Ft, Lf	Linear Foot	Trk	Track
LLT	Last Long Tie	TS	Tangent To Spiral
Lt	Left	Typ.	Typical
Max	Maximum	V	Velocity
MH	Manhole	Var.	Varies
Min	Minimum	VC	Vertical Curve
Misc	Miscellaneous	Vert.	Vertical
MP	Mile Post	W	Water, West
N	Northing	Xover	Crossover
		Xing	Crossing
		YD	Yard

LEGEND

Planned Boring

Drilled Boring

PRELIMINARY PLANS

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SERIES STGN-06 OF STGN-09

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NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

WEST LAKE CORRIDOR
DYER TO HAMMOND, INDIANA

DESIGNED:	HDR-MAB
DRAWN:	HDR-MAB
CHECKED:	HDR-EJW
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

GENERAL NOTES (1 OF 2)

FILENAME	SHT_WL_ST_GEN_GenNote_01.dgn
SCALE	AS NOTED

SHEET **6 OF 218**

CAST-IN-PLACE CONCRETE NOTES:

1. ALL CAST-IN-PLACE CONCRETE, EXCEPT FOR DRILLED SHAFTS, SHALL BE INDOT CLASS C AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS. CAST-IN-PLACE CONCRETE SHALL BE IN ACCORDANCE WITH CHAPTER 8, CONCRETE STRUCTURES AND FOUNDATIONS, OF THE AREMA MANUAL.
2. CEMENT SHALL CONFORM TO THE FOLLOWING:
   A. STANDARD CONCRETE - CEMENT SHALL BE PORTLAND CEMENT, TYPE I, IA, CONFORMING TO THE REQUIREMENTS OF ASTM C 150.
   B. HIGH-EARLY STRENGTH - CEMENT SHALL BE PORTLAND CEMENT, TYPE III OR IIIA, CONFORMING TO THE REQUIREMENTS OF ASTM C 150.
   C. THE TYPE OF CEMENT SHALL BE AS SHOWN ON THE PLANS OR AS SPECIFIED.
3. CONCRETE SEALER SHALL BE APPLIED TO ALL EXPOSED SURACES OF THE PIERS, BENTS, ABUTMENTS, WINGWALLS, AND RETAINING WALLS.
4. ALL EXPOSED CONCRETE SURFACES SHALL HAVE A SMOOTH TROWELED FINISH AND HAVE NO DEPRESSIONS WHICH HOLD WATER.
5. ALL EXPOSED EDGES SHALL HAVE A 3/4" x 3/4" CHAMFER.
6. REINFORCING BARS SHALL MEET THE FOLLOWING REQUIREMENTS:
   A. ALL REINFORCING BARS SHALL BE IN ACCORDANCE WITH CHAPTER 8, CONCRETE STRUCTURES AND FOUNDATIONS, OF THE AREMA MANUAL.
   B. BARS SHALL BE INTERMEDIATE GRADE, NEW DEFORMED BILLET STEEL, CONFORMING TO THE REQUIREMENTS OF ASTM A 615, GRADE 60.
   C. SIZE, GRADE, SHAPE AND LENGTH SHALL BE AS SHOWN ON THE PLANS.
   D. BARS SHALL BE FREE FROM DIRT, PAINT, OIL, GREASE, THICK RUST AND OTHER FOREIGN SUBSTANCES.
   E. REINFORCING BARS SHALL MEET THE LAP REQUIREMENTS OF AREMA CHAPTER 8 - CONCRETE STRUCTURES, SECTION 2.14 AND 2.22.3 FOR A CLASS C SPLICE.
   F. THE MINIMUM CLEAR DISTANCE FROM THE REINFORCING BARS TO SURFACE OF THE CONCRETE SHALL BE IN ACCORDANCE WITH AREMA CHAPTER 8 - CONCRETE STRUCTURES, SECTION 2.6.1 - MINIMUM CONCRETE COVER.
   G. REINFORCEMENT BENDING DETAILS SHALL BE IN ACCORDANCE WITH THE "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES", ACI 315, LATEST EDITION.
   H. BARS SHALL BE BENT IN THE PLANE FOR WHICH THEY WERE DESIGNED. MAXIMUM ALLOWABLE DEVIATION FOR NO. 7 BARS AND SMALLER SHALL BE 1/2" OUT OF PLANE AND MAXIMUM ALLOWABLE DEVIATION FOR NO. 8 BARS AND LARGER SHALL BE 1 INCH OUT OF PLANE.
   I. FABRICATION, BENDING, AND PLACEMENT OF REINFORCING BARS SHALL BE IN ACCORDANCE WITH CURRENT AREMA GUIDELINES FOR CONCRETE STRUCTURES AND FOUNDATIONS.
   J. TIE WIRES USED FOR TYING REINFORCING BARS SHALL BE A MINIMUM DIAMETER OF NO. 16 GAUGE, BLACK, SOFT IRON WIRE.

WATERPROOFING NOTES:

1. STEEL DECKS ARE TO BE WATERPROOFED USING A LIQUID SPRAY APPLIED ELASTOMERIC WATERPROOFING MEMBRANE FROM AN APPROVED SUPPLIER. APPROVED SUPPLIERS INCLUDE RJ WATSON (BRIDGE TECH) AND BRIDGE PRESERVATION, LLC.
2. HORIZONTAL SURFACES OF WATERPROOFING MEMBRANE ARE TO BE PROTECTED WITH ASPHALT PANELS OR BALLAST MATS.
3. EXPANSION JOINTS ARE TO BE DETAILED FOLLOWING MEMBRANE SUPPLIER'S RECOMMENDATIONS.

RETAINING WALL NOTES:

1. RETAINING WALLS PROPOSED THROUGHOUT THE PROJECT ARE PRECAST MODULAR RETAINING WALLS. PRECAST MODULAR WALL SYSTEMS MUST BE APPROVED BY THE OWNER AND HAVE A PROVEN HISTORY OF USE ON RAILROAD PROJECTS.
2. PRECAST MODULAR WALLS MAY BE T-WALL PROVIDED BY THE NEEL COMPANY, EVERGREEN, OR AN APPROVED ALTERNATE.
3. BRIDGE SUBSTRUCTURE AND RETAINING WALL UNITS MUST BE DESIGNED AND DETAILED SO THAT THEY ARE COMPATIBLE AND PERFORM AS THEY ARE INTENDED.
4. RETAINING WALLS MAY BE PROVIDED WITH A PILE FOUNDATION IF THE ALLOWABLE BEARING CAPACITY OF THE SOIL IS NOT SUFFICIENT FOR THE APPLIED LOAD AND OVEREXCAVATION OR OTHER SOIL REMEDIATION IS NOT FEASIBLE.

FOUNDATION NOTES:

1. SOIL DATA IS AVAILABLE FOR FINAL DESIGN OF BRIDGE FOUNDATIONS. FOUNDATIONS SHOWN IN THE PLANS ARE CONCEPTUAL IN NATURE AND BASED ON VERY LIMITED DATA AND WILL NEED TO BE EVALUATED AND COMPLETED IN FINAL DESIGN.
2. MOST BRIDGES ARE EXPECTED TO REQUIRE DEEP FOUNDATIONS. THE PLANS INDICATE PILES AND DRILLED SHAFTS IN SPECIFIC LOCATIONS; HOWEVER THE CONTRACTOR MAY CHOOSE TO REVISE THE FOUNDATION TYPE AT EACH LOCATION TO SUIT THE NEEDS OF THE PROJECT.
3. TO ELIMINATE AXIAL REDUCTION FACTORS, A MINIMUM SPACING REQUIREMENT FOR THE PILES OR DRILLED SHAFTS SHOULD BE THREE DIAMETERS (EQUIVALENT) CENTER-TO-CENTER PER AREMA CHAPTER 8, SECTION 4.2.3.3.A (2016). TO ELIMINATE LATERAL REDUCTION FACTORS, A MINIMUM SPACING REQUIREMENT FOR THE PILES OR DRILLED SHAFTS SHOULD BE EIGHT DIAMETERS (EQUIVALENT) CENTER-TO-CENTER.
4. ANALYSES THAT MAY NEED TO BE PERFORMED FOR FINAL DESIGN OF FOUNDATIONS INCLUDE LATERAL RESISTANCE, NEGATIVE SKIN FRICTION, SCOUR, AND STATIC PILE ANALYSIS.
5. ASSUMPTIONS USED FOR CONCEPTUAL DESIGN:
   A. H-PILES:
      1. THE PILES WHICH ARE ANTICIPATED TO BE DRIVEN TO COMPETENT BEDROCK SHOULD INCLUDE DRIVING TIPS AND/OR SHOES.
      2. IF THE PILES ARE DRIVEN TO COMPETENT BEDROCK, IT IS ANTICIPATED THAT THE ULTIMATE GEOTECHNICAL AXIAL RESISTANCE WILL EXCEED THE STRUCTURAL LOAD CAPACITY OF THE PILES. IN THIS CASE, THE STRUCTURAL LOAD CAPACITY WOULD GOVERN THE DESIGN AXIAL RESISTANCE.
      3. THE ESTIMATED FACTORED AXIAL RESISTANCE OF A SINGLE HP 14X89 DRIVEN TO BEDROCK IS 165 TONS. THIS CAPACITY IS BASED ON THE REQUIREMENTS OF AREMA CHAPTER 8, SECTION 4.4.2.6 (2016) WITH A REDUCTION FACTOR OF 0.35.
      4. THE PILES MAY BE DRIVEN TO REFUSAL ON COMPETENT BEDROCK IF SIDE FRICTION IS NOT ADEQUATE. PILE REFUSAL SHALL BE DEFINED AS 10 HAMMER BLOWS WITH LESS THAN 1-INCH OF PILE PENETRATION.
      5. FOR ABUTMENTS AND PIERS NORTH OF DOUGLAS STREET, BEDROCK IS ESTIMATED TO BE BETWEEN ELEVATION 450 AND 500 BASED ON PRELIMINARY INVESTIGATION AND PUBLISHED LITERATURE. PILE LENGTHS ARE ESTIMATED TO BE APPROXIMATELY 100 FEET. FOR ABUTMENTS AND PIERS SOUTH OF DOUGLAS STREET, BEDROCK IS ESTIMATED TO BE BETWEEN ELEVATION 500 AND 525 BASED ON PRELIMINARY INVESTIGATION AND PUBLISHED LITERATURE. PILE LENGTHS ARE ESTIMATED TO BE APPROXIMATELY 80 FEET.
   B. DRILLED SHAFTS:
      1. DESIGN OF DRILLED SHAFTS SHOULD BE IN ACCORDANCE WITH THE CURRENT FHWA DRILLED SHAFT CONSTRUCTION PROCEDURES AND DESIGN METHODS MANUAL.
      2. INSTALLATION OF DRILLED SHAFT FOUNDATIONS SHOULD BE MONITORED BY AN EXPERIENCED AND QUALIFIED GEOTECHNICAL ENGINEER FAMILIAR WITH THE SUBSURFACE CONDITIONS AT THE PROJECT SITE. THE MEANS AND METHODS OF CONSTRUCTION ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR'S PROPOSED DRILLED SHAFT INSTALLATION PROCEDURE SHALL BE SUBMITTED FOR APPROVAL BEFORE CONSTRUCTION.
      3. PERMANENT CASING MAY BE REQUIRED. REQUIREMENTS FOR CASING TO BE DETERMINED IN FINAL DESIGN. IN CASE OF OVERBURDEN SOILS THAT ARE SUBJECT TO SLOUGHING OR CAVING, TEMPORARY CASING MAY BE REQUIRED IN ORDER TO EXCAVATE AND DRILL OR CORE THE DRILLED SHAFT. TEMPORARY CASING, IF USED, SHOULD BE EXTRACTED IN STAGES ENSURING THAT AFTER EACH LENGTH OF CASING IS REMOVED, THE CONCRETE LEVEL IS BROUGHT BACK UP TO THE GROUND LEVEL BEFORE THE NEXT LENGTH IS REMOVED.
      4. DRILLED HOLES MUST NOT BE LEFT OPEN OVERNIGHT.
      5. FINAL CLEANOUT OF THE DRILLED SHAFT SHOULD BE PERFORMED USING AN AIR-LIFT OR CLEANOUT BUCKET AFTER DRILLING IS COMPLETE AND PRIOR TO INSTALLING THE REINFORCEMENT. THE HOLE SHOULD BE DEWATERED PRIOR TO CONCRETE PLACEMENT.
      6. STEEL REINFORCEMENT SHOULD BE SET AND SECURED IN PREDRILLED HOLES AND ENCASED IN CONCRETE IMMEDIATELY FOLLOWING THE COMPLETION OF DRILLING.
      7. CARE SHOULD BE TAKEN TO PROTECT BARE STEEL FROM BEING PLACED IN DIRECT CONTACT WITH THE POTENTIALLY CORROSIVE NATIVE ON-SITE SOIL WITHOUT PROVIDING ADDITIONAL PROTECTIVE MEASURES.
      8. CONCRETE SHOULD HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS. IT IS RECOMMENDED THAT CLASS A MODIFIED CONCRETE BE USED IN THE CONSTRUCTION OF THE DRILLED SHAFTS. THE CONCRETE SHOULD EXHIBIT GOOD WORKABILITY AND SHOULD BE PLACED WITHIN ONE HOUR OF MIXING.

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES STGN-07 OF STGN-09

PLOT DATE: November 08, 2017 5:59:50 PM JMIGUS

HDR Engineering, Inc.
8550 W. Bryn Mawr Ave., Suite 900
Chicago, IL 60631
www.hdrinc.com

ISSUE	DATE	DESCRIPTION
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NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

WEST LAKE CORRIDOR
DYER TO HAMMOND, INDIANA

DESIGNED:	HDR-MAB
DRAWN:	HDR-MAB
CHECKED:	HDR-EJW
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

GENERAL NOTES (2 OF 2)

FILENAME	SHT_WL_ST_GEN_GenNote_02.dgn
SCALE	AS NOTED

SHEET **7 OF 218**

SUMMARY OF QUANTITIES

LOCATION	202-51330 PRESENT STRUCTURE, REMOVE	206-51225 EXCAVATION, DRY	206-XXXXX SHEET PILING, PZC 39	211-09265 STRUCTURE BACKFILL, TYPE 2	604-92237 HAND RAIL, STEEL	616-02320 GEOTEXTILES	701-02936 PILE, STEEL H, HP 14 X 89	701-06011 DYNAMIC PILE LOAD TEST	701-09557 TEST PILE, DYNAMIC, PRODUCTION	701-09559 TEST PILE, DYNAMIC, RESTRIKE	701-09684 PILE SHOE, HP 14 X 89	701-09739 PILE SHOE, HP 12 X 53	701-09891 PILE SHOE, HP 12 X 84	701-11898 PILE, STEEL H, HP 14 X 117	701-11899 PILE SHOE, HP 14 X 117	701-51195 PILE, STEEL H, HP 12 X 53	701-95782 PILE, STEEL H, HP 12 X 84	702-02925 WATER-PROOFING MEMBRANE SYSTEM	702-51001 CONCRETE, A, SUPER-STRUCTURE	702-51005 CONCRETE, A, SUB-STRUCTURE	702-51015 CONCRETE, B, FOOTINGS	703-06029 REINFORCING BARS, EPOXY COATED	707-XXXXX PPC SINGLE CELL BOX GIRDER, 33 IN.
Bridge 101 - CSX RR over Main Street	0	78	0	36	154	0	0	0	0	0	0	0	0	0	0	0	0	1,746	0	97	0	15,714	0
Bridge 101A - Pedestrian Bridge over Main Street	0	53	0	27	0	0	0	2	180	2	0	6	0	0	0	480	0	0	0	53	0	8,586	0
Retaining Walls 301S & 301N	0	0	72,463	0	1,398	0	0	0	0	0	0	57	0	0	0	5,130	0	0	0	0	0	0	0
Bridge 102 - CSX RR/NICTD over Pedestrian Underpass	0	69	0	35	33	0	2,754	2	180	2	34	0	0	2,754	34	0	0	0	0	240	0	38,880	461
Retaining Wall 301A	0	0	0	10,359	1,250	0	0	0	0	0	0	51	0	0	0	4,590	0	0	0	0	0	0	0
Retaining Walls 302W & 302E	0	0	0	22,438	2,595	0	0	0	0	0	0	105	0	0	0	9,450	0	0	0	0	0	0	0
Elevated Structure 201	0	229	0	99	1,165	0	480	8	720	8	6	0	0	3,192	42	0	0	12,653	0	322	131	73,386	0
Bridge 103 - NICTD over Industrial Spur	0	112	0	56	222	0	720	2	180	2	9	0	26	0	0	0	2,145	2,426	0	85	64	24,138	0
Bridge 104 - NICTD over 45th Street	0	48	0	12	151	0	0	1	90	1	0	0	13	0	0	0	1,053	1,651	0	32	32	10,368	0
Elevated Structure 202	0	280	0	94	1,603	0	4,740	10	900	10	60	0	0	0	0	0	0	17,941	0	362	187	88,938	0
Bridge 105 - NICTD over CSX RR	0	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,799	0	295	0	47,790	0
Elevated Structure 203	0	252	0	84	1,456	0	5,266	10	900	10	54	0	0	0	0	0	0	16,249	0	366	168	86,508	0
Retaining Walls 303W & 303E	0	0	0	9,264	1,218	0	0	0	0	0	0	51	0	0	0	4,590	0	0	0	0	0	0	0
Pedestrian Tunnel 401 at Pennsy Greenway	0	0	0	0	32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Retaining Walls 304W & 304E	0	0	0	0	921	0	0	0	0	0	0	39	0	0	0	3,510	0	0	0	0	0	0	0
Retaining Walls 305W & 305E	0	0	0	2,143	1,003	0	0	0	0	0	0	42	0	0	0	3,780	0	0	0	0	0	0	0
Bridge 106 - NICTD over Broadmoor Avenue	0	0	0	0	123	0	1,080	2	180	2	12	0	0	0	0	0	0	1,371	0	48	0	7,776	0
Retaining Walls 306W & 306E	0	0	0	9,135	3,043	0	0	0	0	0	0	123	0	0	0	11,070	0	0	0	0	0	0	0
Pedestrian Tunnel 402 at Beldon Place	0	0	0	0	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bridge 107 - NICTD over Little Calumet River	1	569	0	285	0	0	8,640	4	360	4	96	0	0	0	0	0	0	1,161	0	265	143	66,096	0
Bridge 107A - Pedestrian Bridge over Little Calumet River	0	161	0	81	0	0	0	6	540	6	0	0	0	0	0	0	0	0	0	33	63	15,552	0
Retaining Walls 308W & 308E	0	0	0	4,882	1,795	0	0	0	0	0	0	72	0	0	0	6,480	0	0	0	0	0	0	0
Bridge 108 - NICTD over Fayette Street	0	0	0	0	0	0	1,680	0	0	0	16	0	0	0	0	0	0	570	0	40	0	6,480	0
Retaining Walls 309W & 309E	0	0	0	3,993	583	0	0	0	0	0	0	24	0	0	0	2,160	0	0	0	0	0	0	0
Bridge 109 - NICTD over Sibley Street	0	0	0	40	214	0	3,600	0	0	0	40	0	0	0	0	0	0	2,778	0	93	0	15,066	0
Elevated Structure 204	0	181	0	61	501	0	1,536	4	360	4	16	0	0	0	0	0	0	5,615	0	160	117	44,874	0
Bridge 109A - NICTD over State Street	0	0	0	0	201	0	0	0	0	0	0	0	0	0	0	0	0	2,136	0	56	0	9,072	0
Bridge 110 - NICTD over NS RR	0	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,003	0	576	0	93,312	0
Bridge 111 - NICTD over WIllow Court	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,670	0	45	0	7,290	0
Bridge 112 - NICTD over IHB RR	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	413	0	43	0	6,966	0
Elevated Structure 207	0	480	0	160	1,253	0	900	12	1,080	12	10	0	0	0	0	0	0	13,450	0	528	0	85,536	0
Bridge 113 - NICTD over Hohman Avenue	0	403	0	58	0	0	0	0	0	0	0	0	0	0	0	0	0	4,571	0	380	0	61,560	0
Elevated Structure 207A	0	0	0	0	1,111	0	4,950	8	720	8	55	0	0	0	0	0	0	11,979	0	77	0	12,474	0
Bridge 115 - NICTD over Grand Calumet River	0	36	0	0	0	0	3,600	2	180	2	40	0	0	0	0	0	0	3,723	0	85	0	13,770	0
Retaining Walls 312W & 312E	0	0	0	7,511	2,198	0	0	0	0	0	0	90	0	0	0	8,100	0	0	0	0	0	0	0
Elevated Structure 208	0	445	0	75	962	0	8,254	6	540	6	86	0	0	0	0	0	0	8,772	763	355	371	117,612	0
Bridge 116 - NICTD over CSX RR	0	146	0	21	0	0	0	0	0	0	0	0	0	0	0	0	0	3,235	0	130	0	21,060	0
Elevated Structure 209	0	712	0	119	1,616	0	12,976	9	810	9	136	0	0	0	0	0	0	14,394	1,004	353	593	153,252	0
Retaining Walls 313W & 313E	0	0	0	7,264	1,521	0	0	0	0	0	0	63	0	0	0	5,670	0	0	0	0	0	0	0
Pedestrian Tunnel 403 at Gateway Station	0	0	0	0	34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	1 LS	4,322 CYS	72,463 SFT	78,332 CYS	28,380 LFT	345,721 SYS	61,176 LFT	88 EACH	7,920 LFT	88 EACH	670 EACH	723 EACH	39 EACH	5,946 EACH	76 EACH	65,010 EACH	3,198 EACH	132,306 SFT	1,767 CYS	5,119 CYS	1,869 CYS	1,132,056 LBS	461 LFT

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES STGN-08 OF STGN-09

PLOT DATE: November 08, 2017 6:00:05 PM JMIGUS

HDR Engineering, Inc.
8550 W. Bryn Mawr Ave., Suite 900
Chicago, IL 60631
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ISSUE	DATE	DESCRIPTION
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NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

WEST LAKE CORRIDOR
DYER TO HAMMOND, INDIANA

DESIGNED:	HDR-MAB
DRAWN:	HDR-MAB
CHECKED:	HDR-EJW
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

SUMMARY OF QUANTITIES
(1 OF 2)

FILENAME	SHT_WL_ST_GEN_QuantSum_01.dgn
SCALE	AS NOTED

SHEET **8 OF 218**

SUMMARY OF QUANTITIES

LOCATION	709-51821	711-51035	714-XXXXX	714-XXXXX	714-XXXXX	715-05053	728-11674	728-11677	728-11733	728-XXXXX	728-11856	731-93947	XXX-XXXXX	XXX-XXXXX	XXX-XXXXX	XXX-XXXXX	XXX-XXXXX	XXX-XXXXX
	SURFACE SEAL	STRUCTURAL STEEL	STRUCTURE, REINFORCED CONCRETE, BOX SECTION, 14 FT. X 10 FT.	STRUCTURE, REINFORCED CONCRETE, BOX SECTION, 10 FT. X 10 FT.	STRUCTURE, REINFORCED CONCRETE, BOX SECTION, 15 FT. X 10 FT.	PIPE, UNDERDRAIN, OUTLET 6 IN.	DRILLED SHAFT 48 IN. DIAMETER	DRILLED SHAFT 84 IN. DIAMETER	DRILLED SHAFT 72 IN. DIAMETER	DRILLED SHAFT 42 IN. DIAMETER	DRILLED SHAFT 60 IN. DIAMETER	LEVELING PAD, CONCRETE	PRECAST MODULAR RETAINING WALL	CONCRETE STAIN	8 IN. DIA. HALF-ROUND BITUMINOUS COATED GALVANIZED PERFORATED DRAIN PIPE	STEEL GRATE WALKWAY	6 IN. NON-PERFORATED CORRUGATED PLASTIC PIPE DOWNSPOUT	ROPE CABLE, 3/8 IN. DIA.
Bridge 101 - CSX RR over Main Street	1437	233348.5	0	0	0	0	0	0	320	180	0	0	0	0	0	0	0	0
Bridge 101A - Pedestrian Bridge over Main Street	1128	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Retaining Walls 301S & 301N	0	0	0	0	0	2796	0	0	0	0	0	33	0	17558	0	0	0	0
Bridge 102 - CSX RR/NICTD over Pedestrian Underpass	2613	86529	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Retaining Wall 301A	0	0	0	0	0	1250	0	0	0	0	0	29	24713	0	10	0	10	0
Retaining Walls 302W & 302E	0	0	0	0	0	2636	0	0	0	0	0	62	75195	57682	0	0	0	0
Elevated Structure 201	11118	1521658.6	0	0	0	0	0	0	480	0	0	0	0	0	0	0	0	0
Bridge 103 - NICTD over Industrial Spur	2063	415729.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bridge 104 - NICTD over 45th Street	1403	213174.5	0	0	0	0	0	0	80	0	0	0	0	0	0	0	0	0
Elevated Structure 202	14888	2095291	0	0	0	0	0	0	800	0	0	0	0	0	0	0	0	0
Bridge 105 - NICTD over CSX RR	2940	489326.2	0	0	0	0	0	316	0	0	320	0	0	0	0	636	0	0
Elevated Structure 203	13525	1902620.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Retaining Walls 303W & 303E	0	0	0	0	0	1655	0	0	0	0	0	30	32211	23107	0	0	0	0
Pedestrian Tunnel 401 at Pennsy Greenway	0	0	42	0	0	32	0	0	0	0	0	0	0	0	0	0	0	0
Retaining Walls 304W & 304E	0	0	0	0	0	921	0	0	0	0	0	21	12584	7126	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Retaining Walls 305W & 305E	0	0	0	0	0	868	0	0	0	0	0	24	15524	9366	0	0	0	0
Bridge 106 - NICTD over Broadmoor Avenue	1143	140552.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Retaining Walls 306W & 306E	0	0	0	0	0	3043	0	0	0	0	0	73	55403	28754	0	0	0	0
Pedestrian Tunnel 402 at Beldon Place	0	0	0	26	0	24	0	0	0	0	0	0	0	0	0	0	0	0
Bridge 107 - NICTD over Little Calumet River	3031	694422.3	0	0	0	0	0	0	0	0	0	0	0	0	0	851	0	0
Bridge 107A - Pedestrian Bridge over Little Calumet River	2415	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Retaining Walls 308W & 308E	0	0	0	0	0	1795	0	0	0	0	0	34	21241	14543	0	0	0	0
Bridge 108 - NICTD over Fayette Street	2204	295696.5	0	0	0	0	0	0	0	0	0	0	0	0	0	448	0	221
Retaining Walls 309W & 309E	0	0	0	0	0	558	0	0	0	0	0	15	18465	15469	0	0	0	0
Bridge 109 - NICTD over Sibley Street	2372	390740.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Elevated Structure 204	4896	451289.3	0	0	0	0	0	0	0	0	360	0	0	0	0	0	0	0
Bridge 109A - NICTD over State Street	1958	324117.2	0	0	0	0	0	0	80	0	0	0	0	0	0	0	0	0
Bridge 110 - NICTD over NS RR	5427	963359.1	0	0	0	0	360	396	0	0	0	0	0	0	0	1202	0	0
Bridge 111 - NICTD over Willow Court	1542	278070.1	0	0	0	0	0	0	90	0	160	0	0	0	0	0	0	0
Bridge 112 - NICTD over IHB RR	2200	244795.1	0	0	0	0	0	0	108	0	0	0	0	0	0	245	0	0
Elevated Structure 207	10333	1140679.1	0	0	0	0	0	0	1080	0	0	0	0	0	0	0	0	0
Bridge 113 - NICTD over Hohman Avenue	4752	942245.7	0	0	0	0	0	0	340	0	0	0	0	0	0	1282	0	0
Elevated Structure 207A	11451	1445467.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bridge 115 - NICTD over Grand Calumet River	4189	706905.1	0	0	0	0	0	0	0	0	0	0	0	0	0	1055	0	0
Retaining Walls 312W & 312E	0	0	0	0	0	2198	0	0	0	0	0	55	47878	33752	0	0	0	0
Elevated Structure 208	9855	1174660.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bridge 116 - NICTD over CSX RR	4163	585686.2	0	0	0	0	0	0	360	0	0	0	0	0	0	1191	0	0
Elevated Structure 209	18008	2119737.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Retaining Walls 313W & 313E	0	0	0	0	0	1521	0	0	0	0	0	38	26858	17494	0	0	0	0
Pedestrian Tunnel 403 at Gateway Station	0	0	0	0	34	34	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	141054 SFT	18856101.8 LBS	42 LFT	26 LFT	34 LFT	19331 LFT	360 LFT	712 LFT	3738 LFT	180 LFT	840 LFT	414 CYS	330072 SFT	224851 SFT	10 LFT	6910 SFT	10 LFT	221 LFT

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES STGN-09 OF STGN-09

PLOT DATE: November 08, 2017 6:00:22 PM JMIGUS

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Chicago, IL 60631
www.hdrinc.com

ISSUE	DATE	DESCRIPTION
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NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

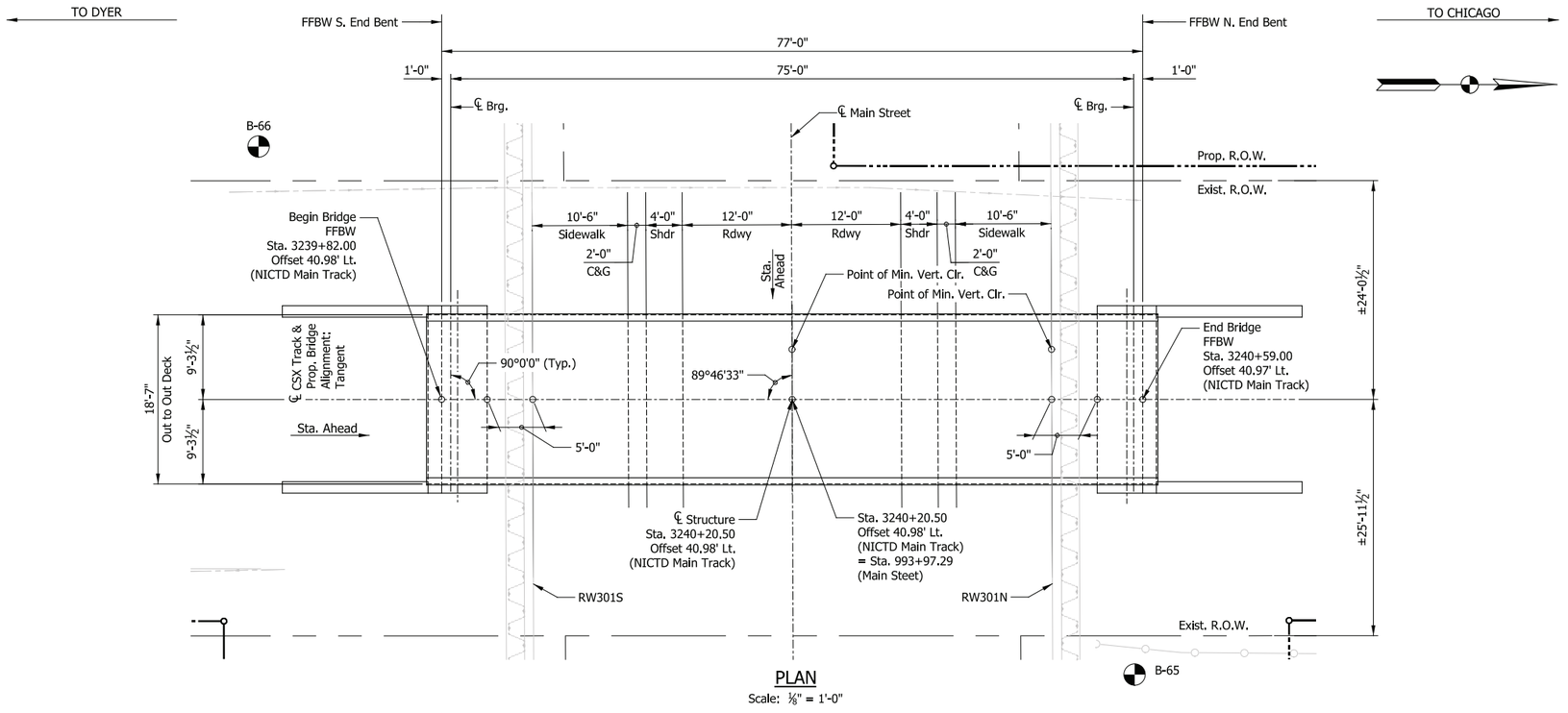
DYER TO HAMMOND, INDIANA

DESIGNED:	HDR-MAB
DRAWN:	HDR-MAB
CHECKED:	HDR-EJW
DATE:	07/21/17

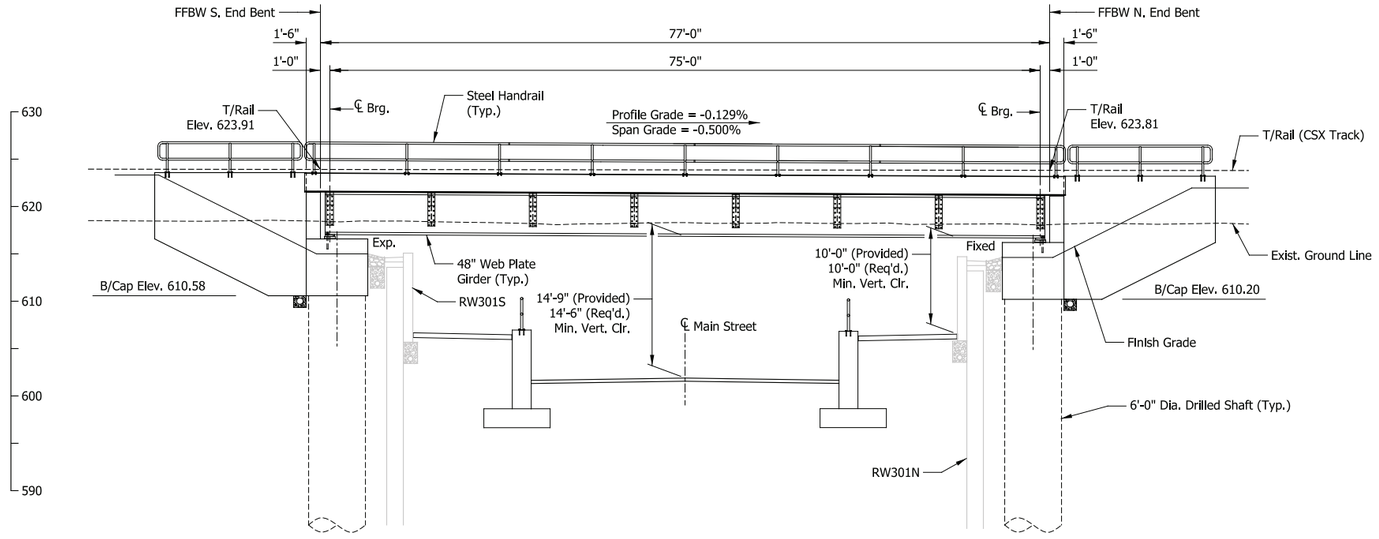
NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

SUMMARY OF QUANTITIES (2 OF 2)

FILENAME	SHT_WL_ST_GEN_QuantSum_02.dgn	SHEET
SCALE	AS NOTED	9 OF 218



PLAN
Scale: ⅛" = 1'-0"



ELEVATION
Scale: ⅛" = 1'-0"

DESIGN DATA

SPECIFICATIONS:
American Railway Engineering and Maintenance-of-Way Association (A.R.E.M.A.), Manual for Railway Engineering, 2016, Chapter 8 and 15.

LIVE LOADS:
Cooper E-80 or AREMA Alternate Live Load

DEAD LOADS:
Maximum Ballast Depth = 21 inches (at High End of Span)

DESIGN STRESSES:
Steel: fy = 50,000 psi (ASTM A709 Gr 50)
Reinforcing: fy = 60,000 psi (ASTM A615)
Concrete: f'c = 4,000 psi (Min.)

SHEET INDEX

CONSTRUCTION DEPTH

Rail (115 Lbs)	6⅝"
Tie Plate	¾"
Tie	7"
Ballast (min.)	8"
Grout	4½" (at Center), 3½" (Min.)
Waterproofing	1"
Deck Plate	⅝"
Top Flange	3"
Web	48"
Bottom Flange	3"
	82.5"

NOTES

1. For track geometry, see Track Plans.

CSX BRIDGE NOTES

1. This structure is designed to carry CSX design criteria Cooper E-80 live load.
2. The deck is crowned with a transverse slope of 1" and an underlayment of portland cement concrete with a minimum thickness of 3½" per CSX design standard.

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES BR101-01 OF BR101-04

PLOT DATE: November 08, 2017 6:01:21 PM JMTGUS

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ISSUE	DATE	DESCRIPTION

NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

WEST LAKE CORRIDOR
DYER TO HAMMOND, INDIANA

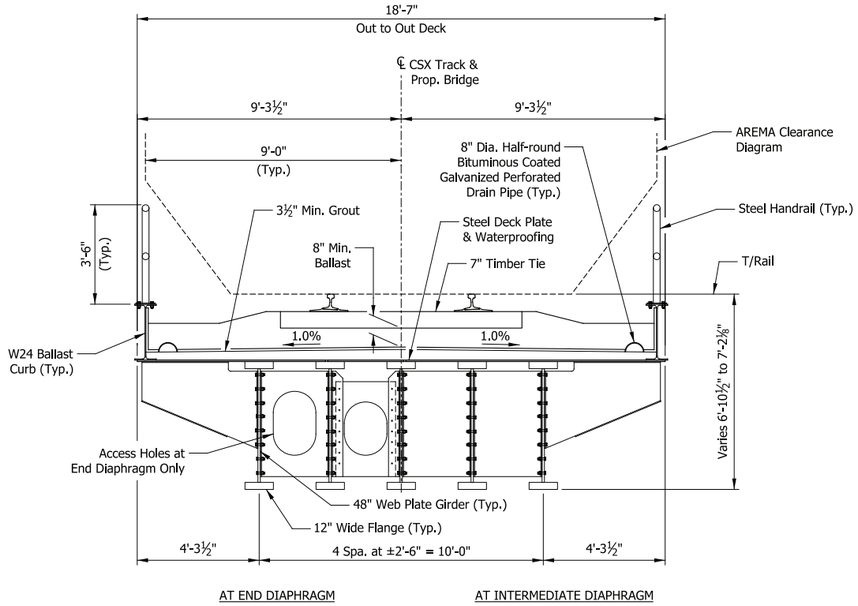
DESIGNED:	HDR-MAB
DRAWN:	HDR-MAB
CHECKED:	HDR-JAL
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

BRIDGE 101 - CSX OVER MAIN STREET
GENERAL PLAN & ELEVATION

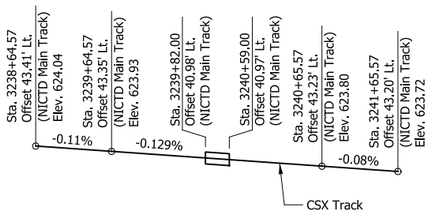
FILENAME	SHT_WL_ST_BR101_GenPlan_01.dgn
SCALE	AS NOTED

SHEET **10 OF 218**



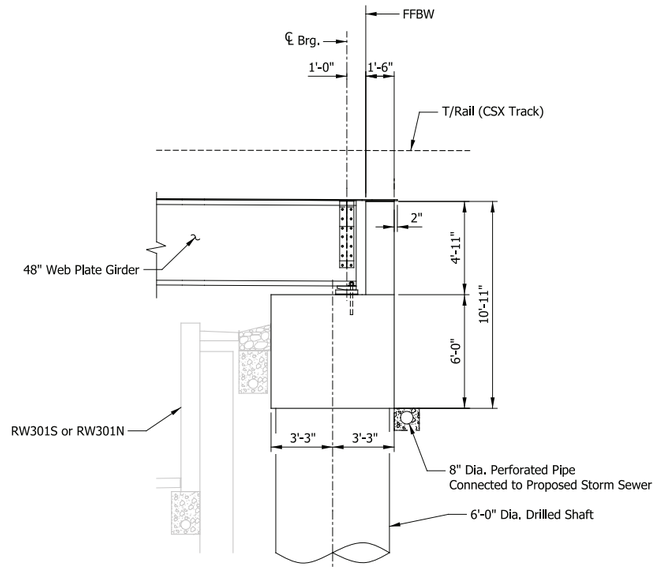
TYPICAL SECTION

Scale: ⅜" = 1'-0"



TOP OF RAIL PROFILE

Not to Scale



SECTION THRU END BENT

Scale: ¼" = 1'-0"

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES BR101-02 OF BR101-04

PLOT DATE: November 08, 2017 6:01:52 PM JMIGUS

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NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

DYER TO HAMMOND, INDIANA

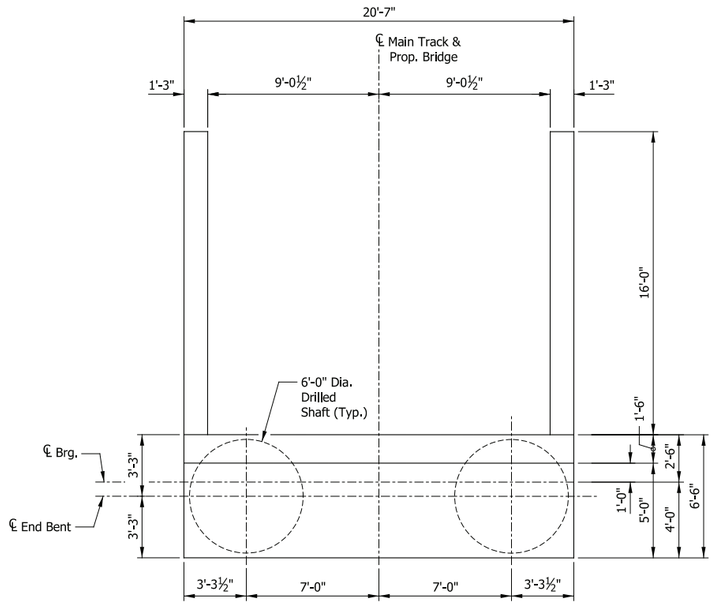
DESIGNED:	HDR-MAB
DRAWN:	HDR-MAB
CHECKED:	HDR-JAL
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

BRIDGE 101 - CSX OVER MAIN STREET
TYPICAL DETAILS

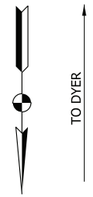
FILENAME	SHT_WL_ST_BR101_TypDet_01.dgn
SCALE	AS NOTED

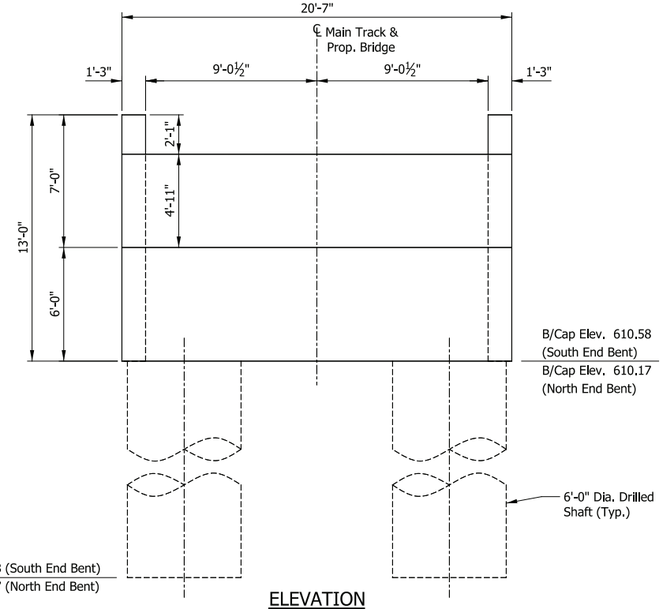
SHEET **11 OF 218**



PLAN

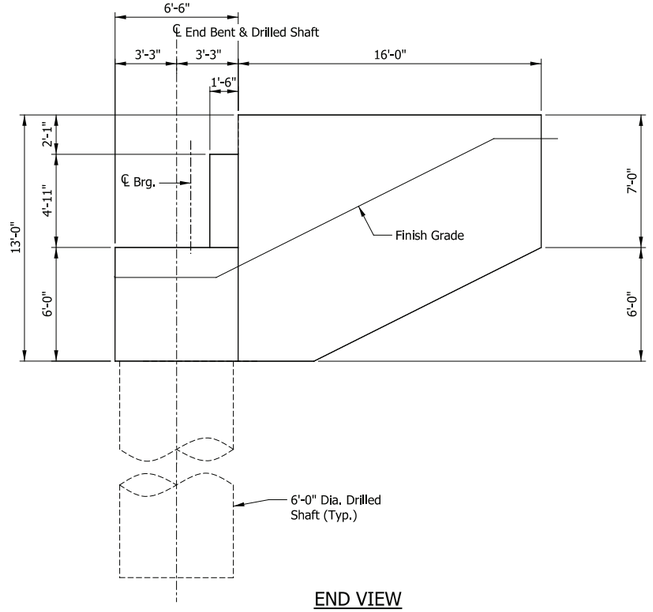
Scale: ¼" = 1'-0"





ELEVATION

Scale: ¼" = 1'-0"



END VIEW

Scale: ¼" = 1'-0"

END BENT

(South End Bent Shown, North End Bent Similar)

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES BR101-03 OF BR101-04

PLOT DATE: November 08, 2017 6:02:12 PM JMIGUS

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33 East Highway 12
Chesterton, Indiana 46304

WEST LAKE CORRIDOR

DYER TO HAMMOND, INDIANA

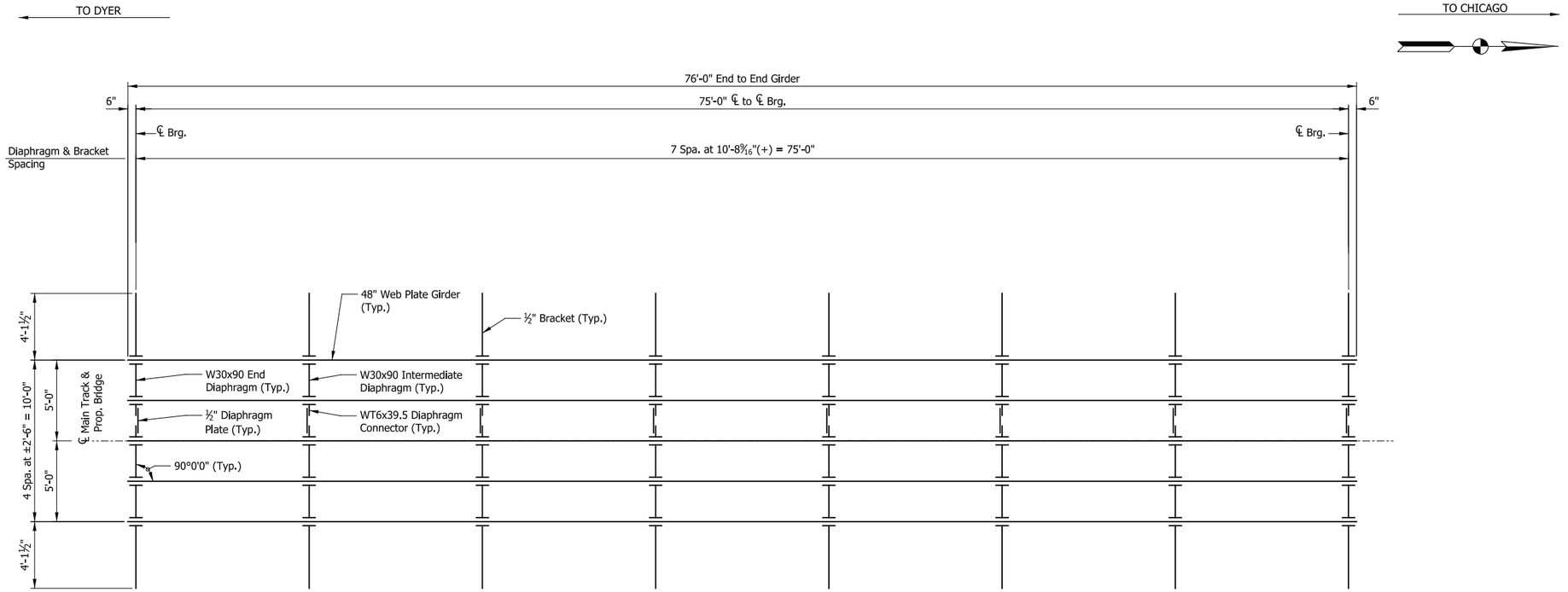
DESIGNED:	HDR-LG
DRAWN:	HDR-JM
CHECKED:	HDR-JAL
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

BRIDGE 101 - CSX OVER MAIN STREET
SUBSTRUCTURE DETAILS

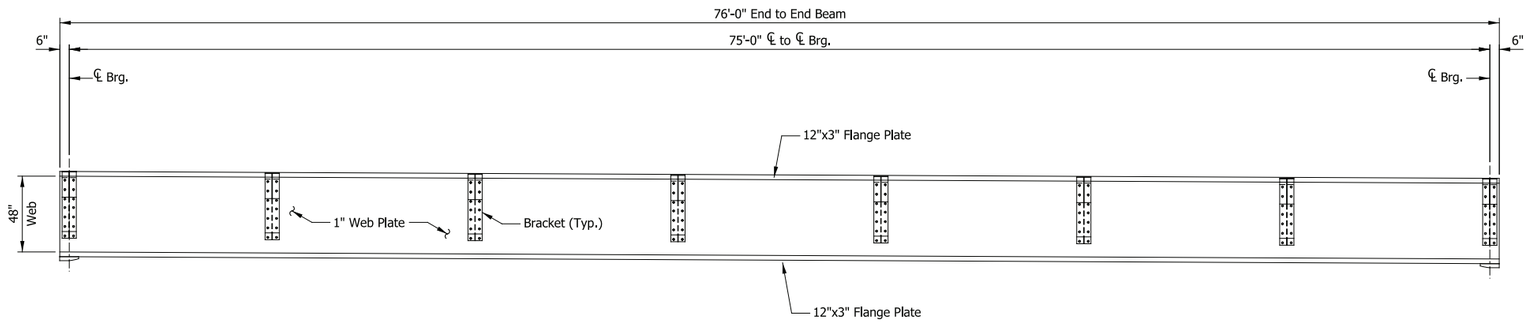
FILENAME	SHT_WL_ST_BR101_SubstrDet_01.dgn
SCALE	AS NOTED

SHEET **12 OF 218**



FRAMING PLAN

Scale: ¼" = 1'-0"



GIRDER EXTERIOR ELEVATION

Scale: ¼" = 1'-0"

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES BR101-04 OF BR101-04

PLOT DATE: November 08, 2017 6:02:23 PM JMIGUS

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NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

WEST LAKE CORRIDOR

DYER TO HAMMOND, INDIANA

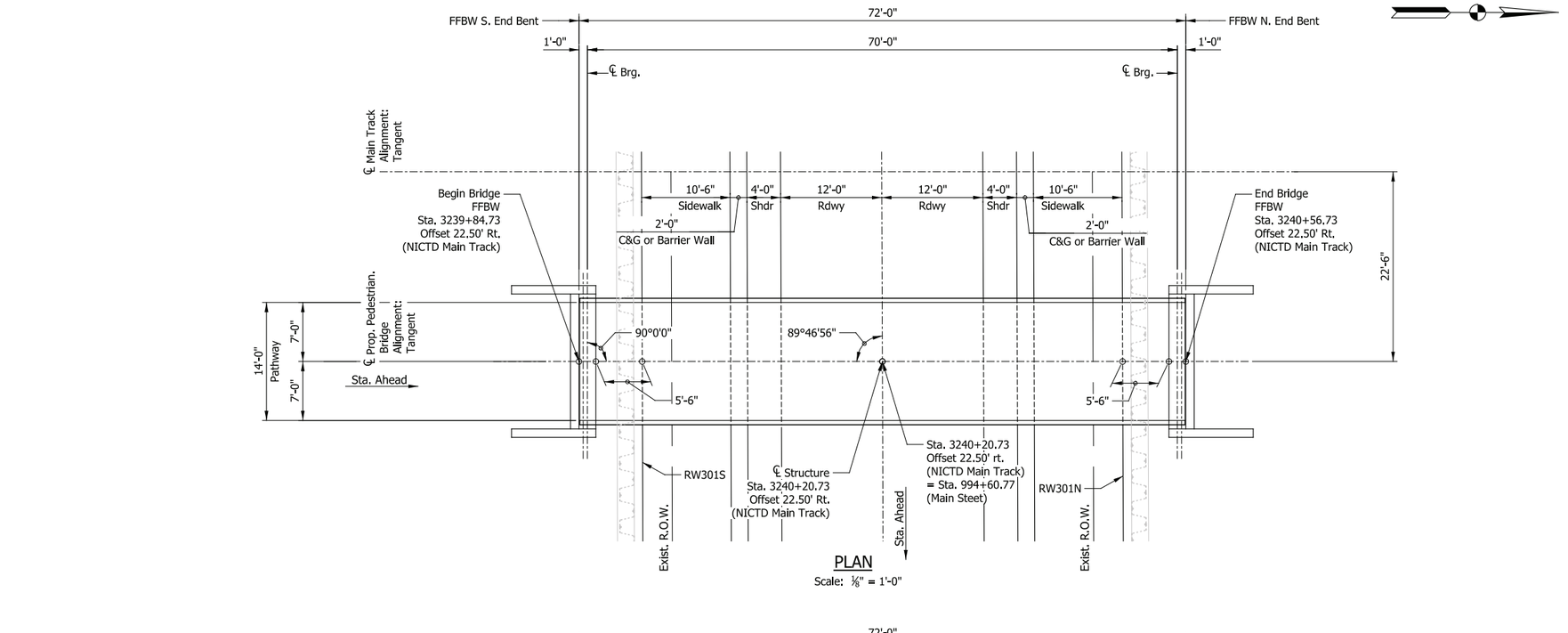
DESIGNED:	HDR-MAB
DRAWN:	HDR-MAB
CHECKED:	HDR-JAL
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

BRIDGE 101 - CSX OVER MAIN STREET
FRAMING PLAN

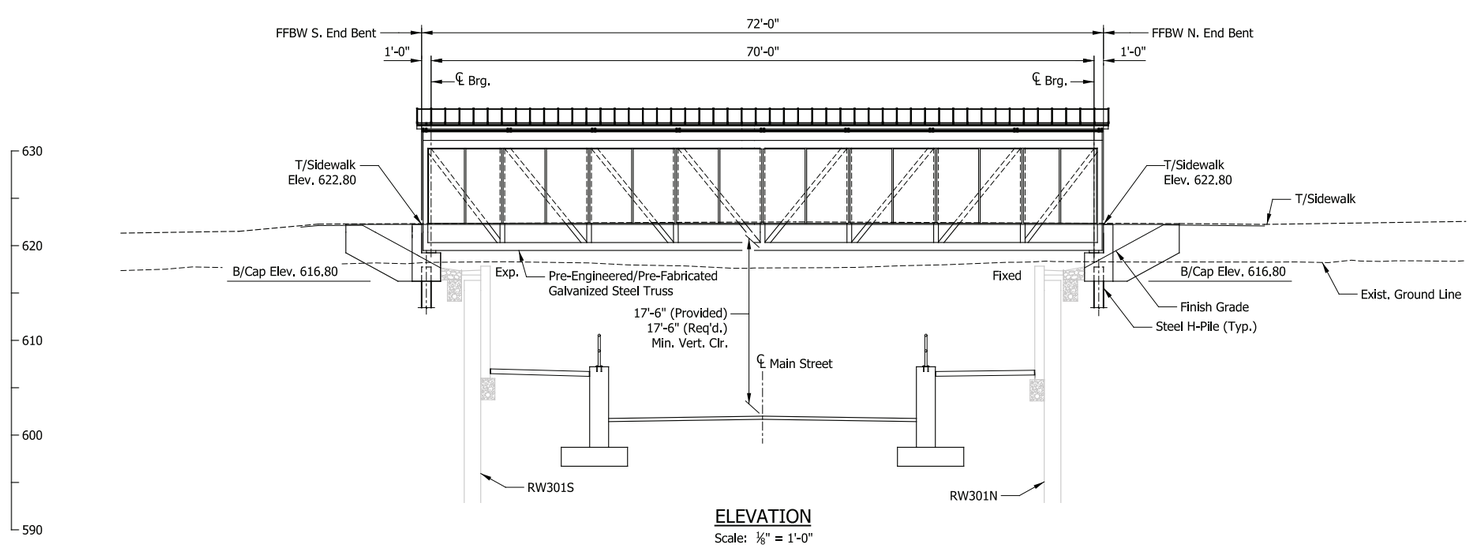
FILENAME	SHT_WL_ST_BR101_FramPlan_01.dgn
SCALE	AS NOTED

SHEET **13 OF 218**



PLAN

Scale: ⅛" = 1'-0"



ELEVATION

Scale: ⅛" = 1'-0"

DESIGN DATA

SPECIFICATIONS:
Distribution of loads in accordance with the AASHTO LRFD Guide Specifications For The Design of Pedestrian Bridges, 2nd Edition. The Pedestrian Loading may be Reduced in Accordance with the Guide Specifications.

LIVE LOADS:
90 Lbs./Sft. Pedestrian or an H-5 Truck Loading.

DEAD LOADS:
Actual Weight plus 15 Lbs./Sft. for Permanent Deck forms. Load Factor 1.3.

FLOOR SLAB:
Designed for a structural depth of 5½".

DESIGN STRESSES:
Steel: fy = 50,000 psi (ASTM A709 Gr 50)
Reinforcing: fy = 60,000 psi (ASTM A615)
Concrete: f'c = 3,500 psi (Min.)

SHEET INDEX

NOTES

1. For sidewalk, Ramps & Stair geometry, see site plans.

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES BR101A-01 OF BR101A-03

PLOT DATE: November 08, 2017 6:03:05 PM JMIGUS

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NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

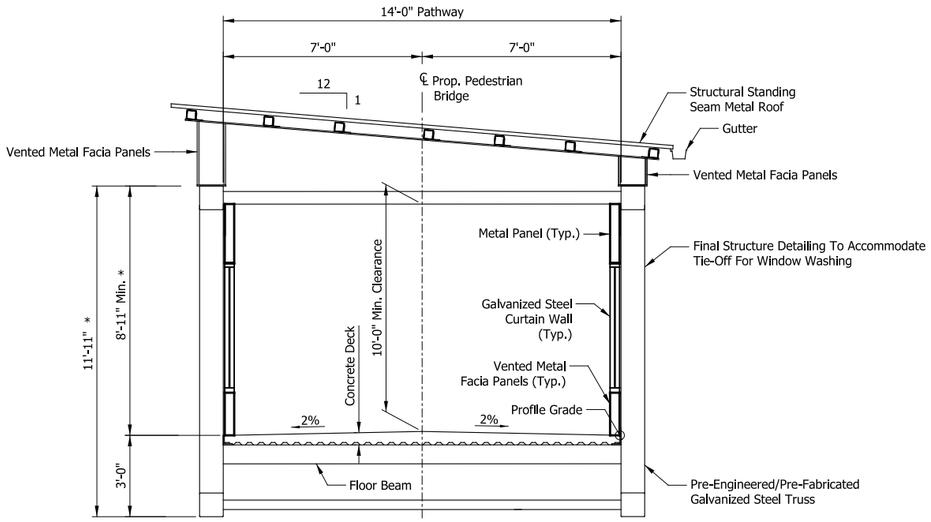
WEST LAKE CORRIDOR
DYER TO HAMMOND, INDIANA

DESIGNED:	ASP-SJF
DRAWN:	ASP-TMT
CHECKED:	ASP-BNM
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

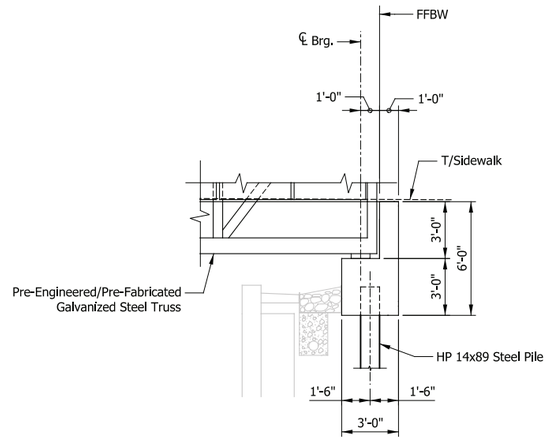
BRIDGE 101A - PEDESTRIAN BRIDGE OVER MAIN STREET
GENERAL PLAN & ELEVATION

FILENAME	SHT_WL_ST_BR101A_GenPlan_01.dgn	SHEET
SCALE	AS NOTED	14 OF 218



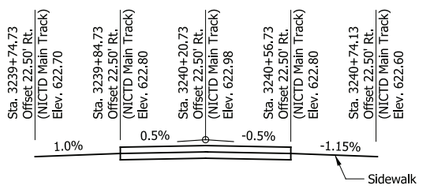
TYPICAL SECTION

Scale: ⅜" = 1'-0"



SECTION THRU END BENT

Scale: ¼" = 1'-0"



SIDEWALK PROFILE

Not to Scale

(Designed By Others)

NOTES

1. * Estimated. Actual Dimensions To Be Determined By Fabricator's Design.

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES BR101A-02 OF BR101A-03

PLOT DATE: November 08, 2017 6:03:17 PM JMIGUS

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33 East Highway 12
Chesterton, Indiana 46304

DYER TO HAMMOND, INDIANA

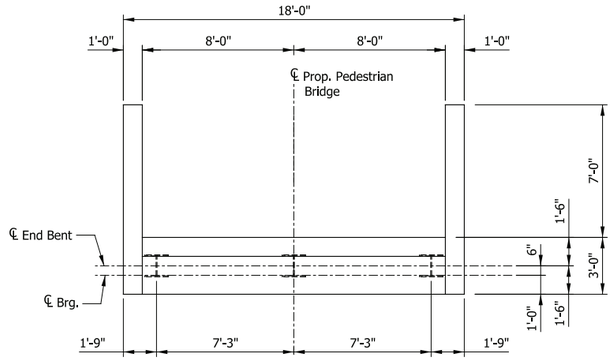
DESIGNED:	ASP-SJF
DRAWN:	ASP-TMT
CHECKED:	ASP-BNM
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

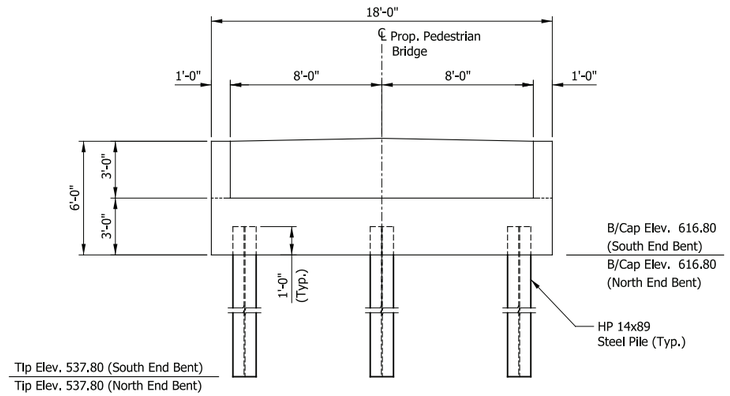
BRIDGE 101A - PEDESTRIAN BRIDGE OVER MAIN STREET TYPICAL DETAILS

FILENAME	SHT_WL_ST_BR101A_TypDet_01.dgn
SCALE	AS NOTED

SHEET **15 OF 218**

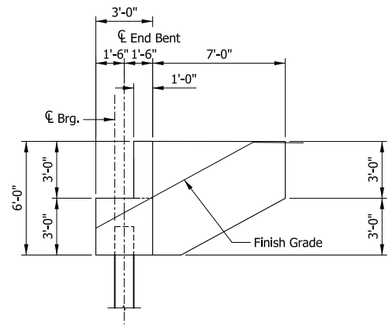


PLAN
Scale: ¼" = 1'-0"



ELEVATION
Scale: ¼" = 1'-0"

SOUTH END BENT
(North End Bent Similar)



END VIEW
Scale: ¼" = 1'-0"

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES BR101A-03 OF BR101A-03

PLOT DATE: November 08, 2017 6:03:27 PM JMIGUS

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ISSUE	DATE	DESCRIPTION
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NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

WEST LAKE CORRIDOR
DYER TO HAMMOND, INDIANA

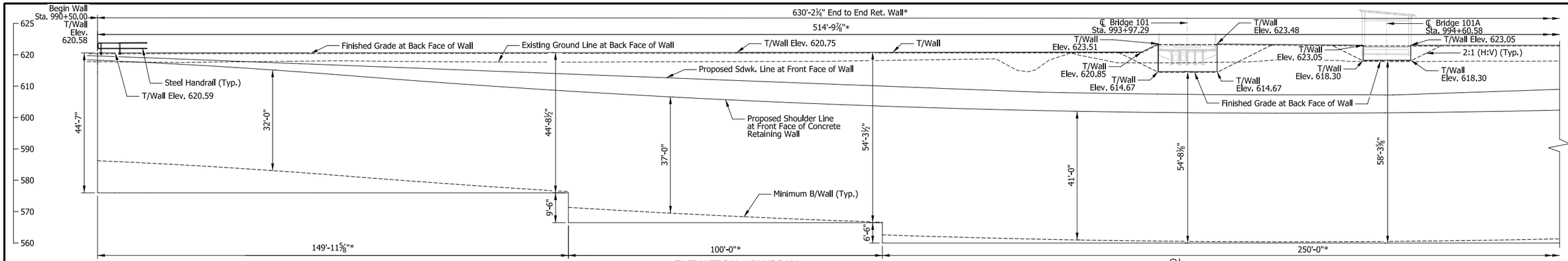
DESIGNED:	ASP-SJF
DRAWN:	ASP-TMT
CHECKED:	ASP-BNM
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

BRIDGE 101A - PEDESTRIAN BRIDGE OVER MAIN STREET SUBSTRUCTURE DETAILS

FILENAME	SHT_WL_ST_BR101A_SubstrDet_01.dgn
SCALE	AS NOTED

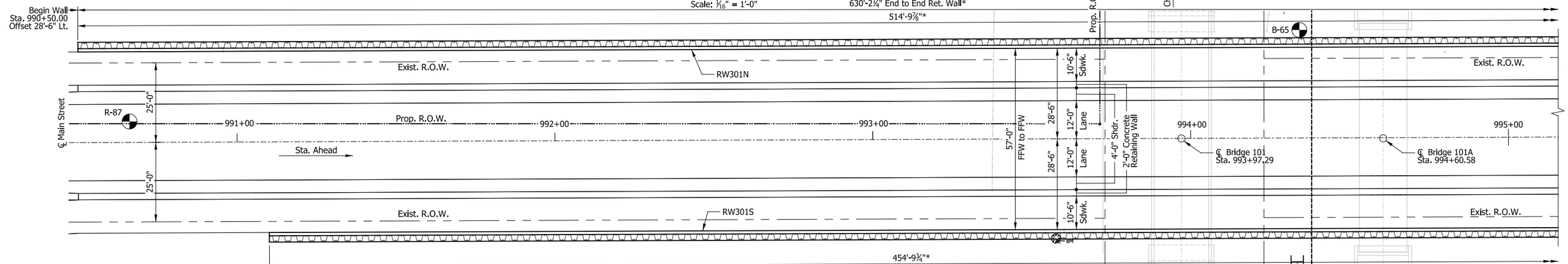
SHEET **16 OF 218**



ELEVATION - RW301N

(Looking North)
Scale: 1/16" = 1'-0"

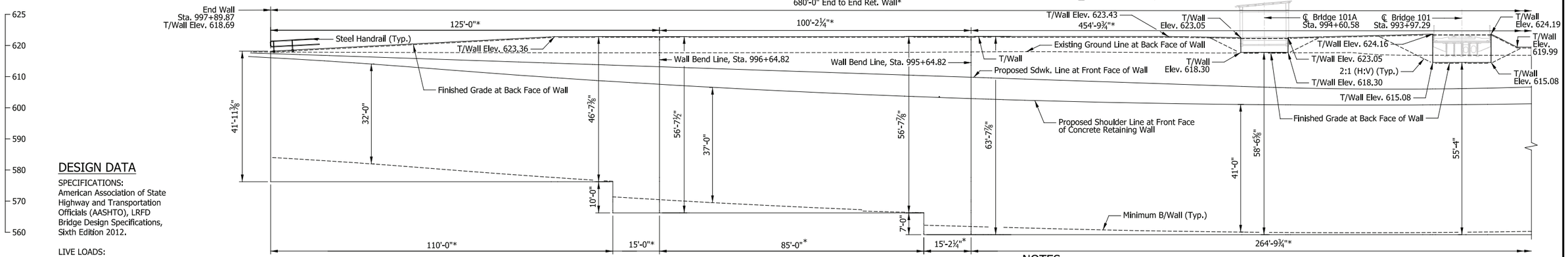
*Measured Along Front Face of Wall



PLAN

Scale: 1/16" = 1'-0"

*Measured Along Front Face of Wall



ELEVATION - RW301S

(Looking South)
Scale: 1/16" = 1'-0"

*Measured Along Front Face of Wall

DESIGN DATA

SPECIFICATIONS:
American Association of State Highway and Transportation Officials (AASHTO), LRFD Bridge Design Specifications, Sixth Edition 2012.

LIVE LOADS:
2' of Surcharge

DESIGN STRESSES:
Steel Sheet Piling: fy = 50,000 psi (ASTM A572 Gr 50)
Reinforcing: fy = 60,000 psi (ASTM A615)
Concrete: f'c = 4,000 psi (Min.)

SHEET INDEX

NOTES

1. For track geometry, see Track Plans.
2. For clarity Catenary Poles and associated Infrastructure not shown in elevation views. For details, see System Plans.

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES RW301-01 OF RW301-04

PLOT DATE: November 08, 2017 6:03:41 PM JMTGUS

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DLZ Indiana, LLC
2211 E. Jefferson Boulevard
South Bend, IN 46615
www.dlz.com

ISSUE	DATE	DESCRIPTION

NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

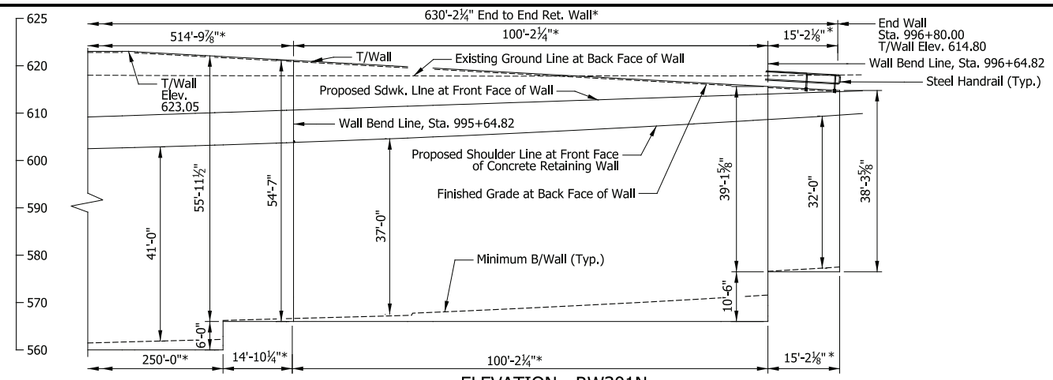
DYER TO HAMMOND, INDIANA

DESIGNED:	DLZ-LML
DRAWN:	DLZ-CJS
CHECKED:	DLZ-TMB
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

RETAINING WALLS 301S & 301N
GENERAL PLAN & ELEVATION (1 OF 2)

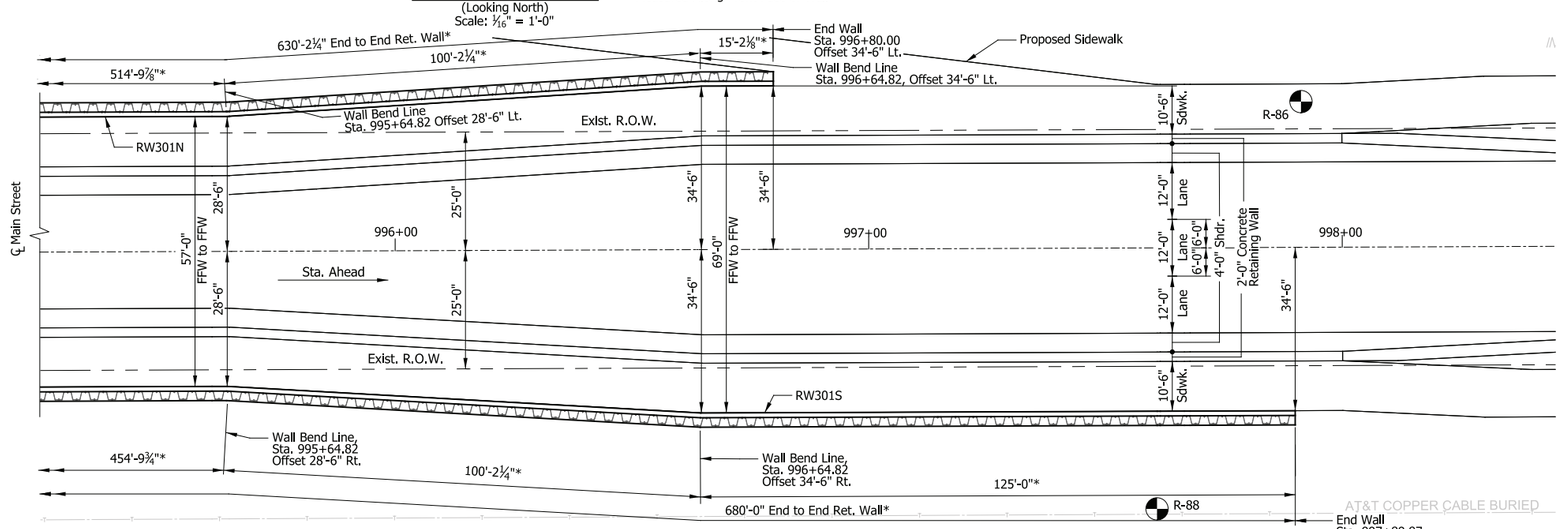
FILENAME	SHT_WL_ST_RW301_GenPlan_01.dgn	SHEET
SCALE	AS NOTED	17 OF 218



ELEVATION - RW301N

(Looking North)
Scale: 1/16" = 1'-0"

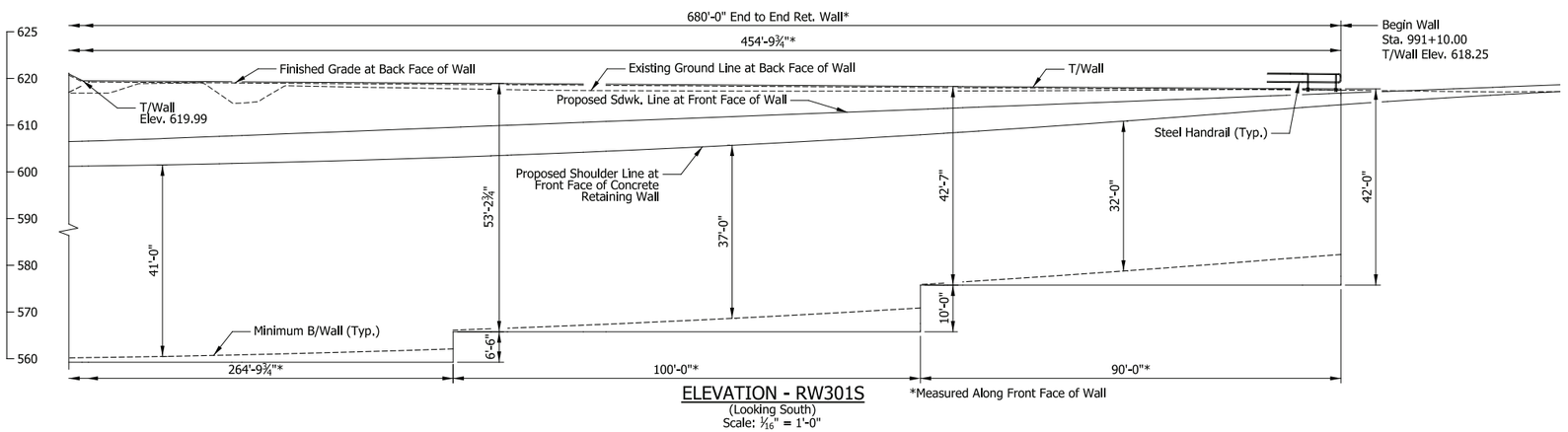
*Measured Along Front Face of Wall



PLAN

Scale: 1/16" = 1'-0"

*Measured Along Front Face of Wall



ELEVATION - RW301S

(Looking South)
Scale: 1/16" = 1'-0"

*Measured Along Front Face of Wall

NOTES

1. For track geometry, see Track Plans.
2. For clarity Catenary Poles and associated infrastructure not shown in elevation views. For details, see System Plans.

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES RW301-02 OF RW301-04

PLOT DATE: November 08, 2017 6:03:54 PM JMTGUS

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DLZ Indiana, LLC
2211 E. Jefferson Boulevard
South Bend, IN 46615
www.dlz.com

ISSUE	DATE	DESCRIPTION

NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

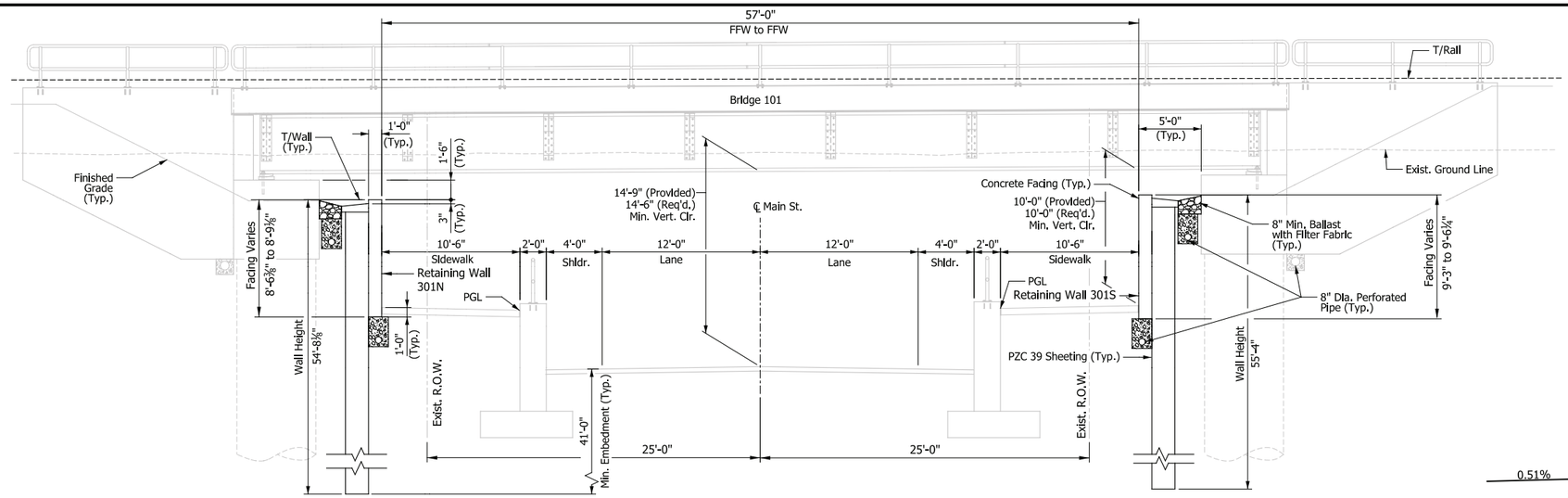
WEST LAKE CORRIDOR
DYER TO HAMMOND, INDIANA

DESIGNED:	DLZ-LML
DRAWN:	DLZ-CJS
CHECKED:	DLZ-TMB
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

RETAINING WALLS 301S & 301N
GENERAL PLAN & ELEVATION (2 OF 2)

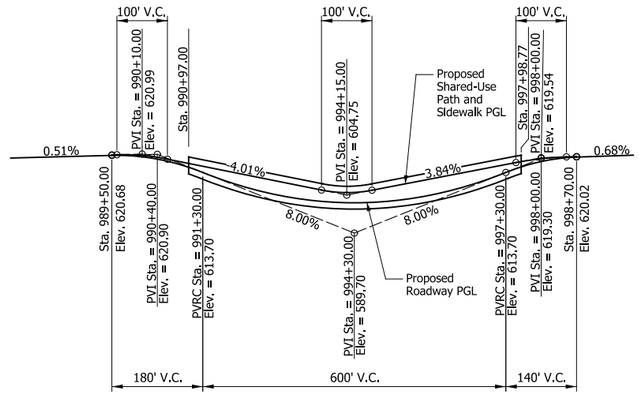
FILENAME	SHT_WL_ST_RW301_GenPlan_02.dgn	SHEET
SCALE	AS NOTED	18 OF 218



TYPICAL SECTION AT BRIDGE 101

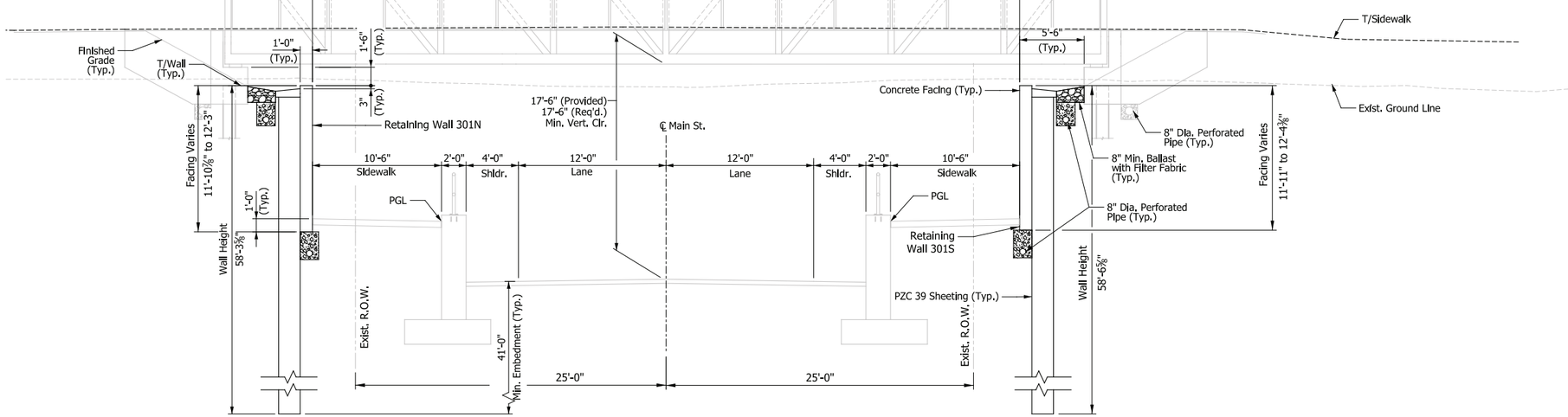
(Looking Upstation)

Scale: 3/16" = 1'-0"



ROADWAY AND SIDEWALK PROFILES

Not to Scale



TYPICAL SECTION AT PEDESTRIAN BRIDGE 101A

(Looking Upstation)

Scale: 3/16" = 1'-0"

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES RW301-03 OF RW301-04

PLOT DATE: November 08, 2017 6:04:02 PM JMIGUS

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DLZ Indiana, LLC
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South Bend, IN 46615
www.dlz.com

ISSUE	DATE	DESCRIPTION
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NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

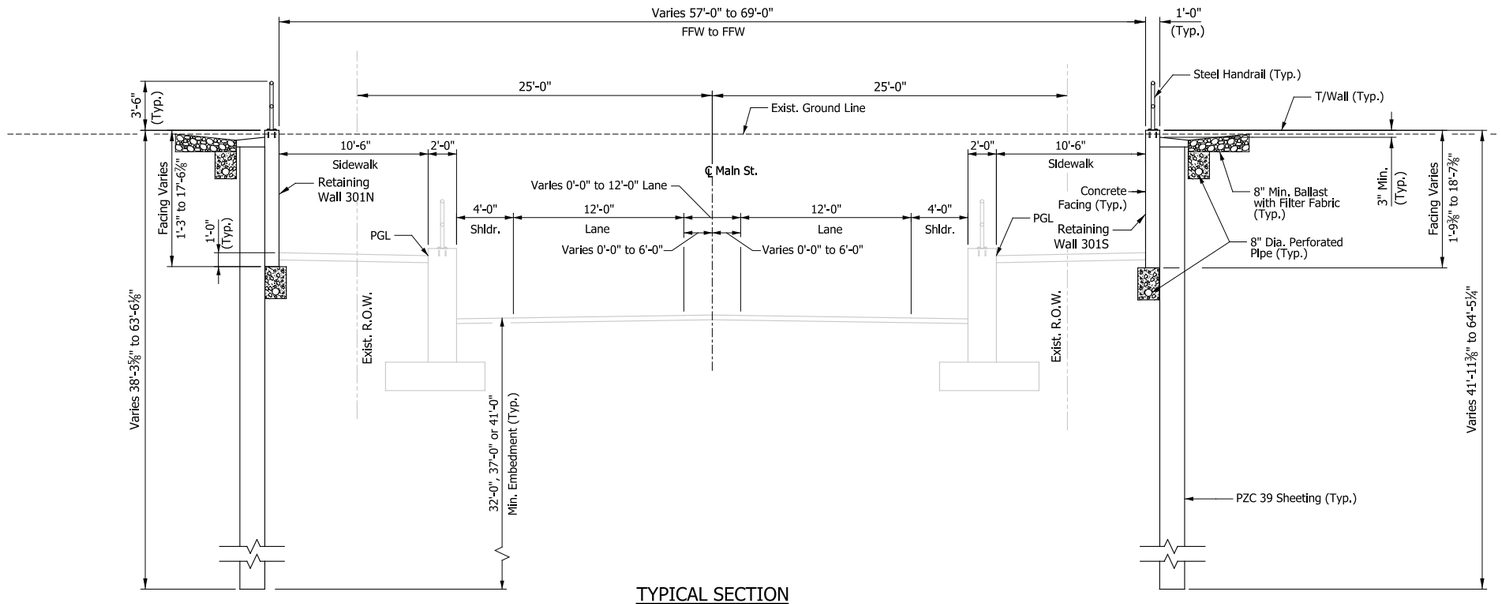
DYER TO HAMMOND, INDIANA

DESIGNED:	DLZ-LML
DRAWN:	DLZ-CJS
CHECKED:	DLZ-TMB
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

RETAINING WALLS 301S & 301N
TYPICAL DETAILS (1 OF 2)

FILENAME	SHT_WL_ST_RW301_TypDet_01.dgn	SHEET
SCALE	AS NOTED	19 OF 218



TYPICAL SECTION
(Looking Upstation)
Scale: 3/16" = 1'-0"

PRELIMINARY PLANS

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SERIES RW301-04 OF RW301-04

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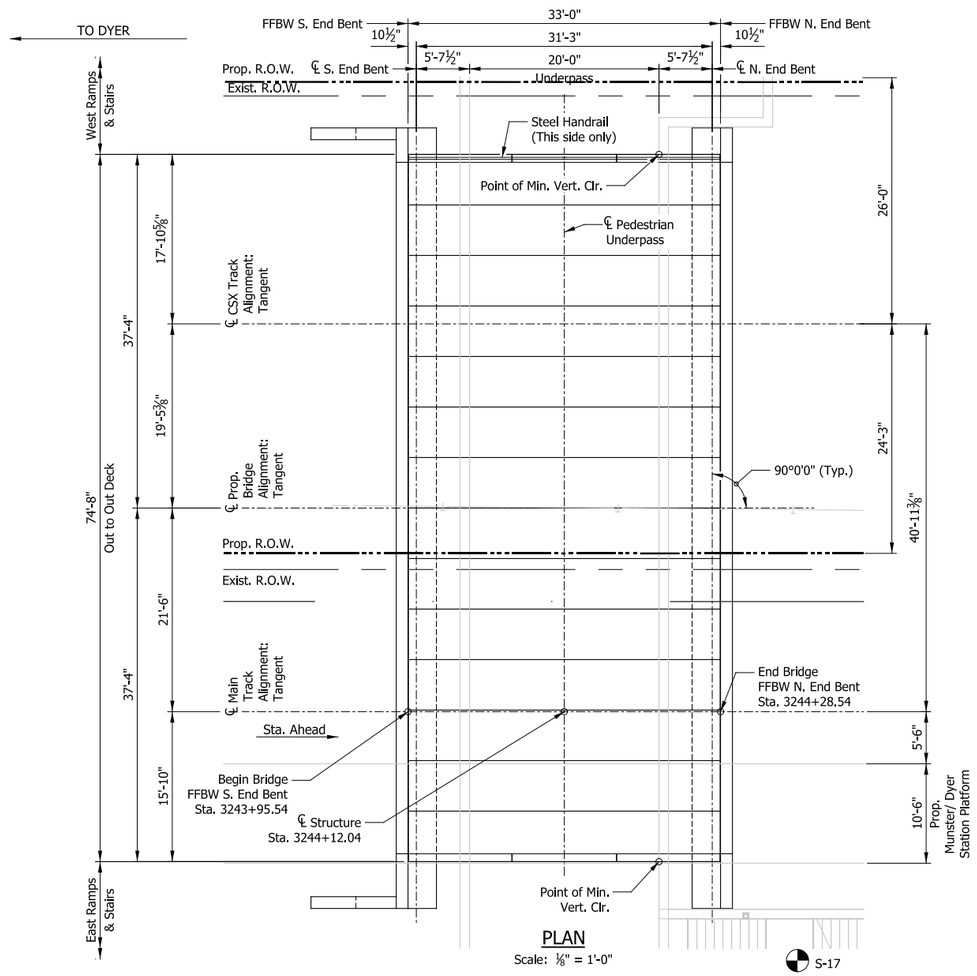
CHECKED:	DLZ-TMB
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

RETAINING WALLS 301S & 301N
TYPICAL DETAILS (2 OF 2)

FILENAME	SHT_WL_ST_RW301_TypDet_02.dgn
SCALE	AS NOTED

SHEET **20 OF 218**



DESIGN DATA

SPECIFICATIONS:
American Railway Engineering and Maintenance-of-Way Association (A.R.E.M.A.), Manual for Railway Engineering, 2016, Chapter 8 and 15.

LIVE LOADS:
Cooper E-80 or ARMEA Alternate Live Load

DEAD LOADS:
Maximum Ballast Depth = 21 inches (at High End of Span)

DESIGN STRESSES:
Steel: fy = 50,000 psi (ASTM A709 Gr 50)
Reinforcing: fy = 60,000 psi (ASTM A615)
Concrete: f'c = 4,000 psi (Min.)

SHEET INDEX

CONSTRUCTION DEPTH

Rail (115 RE)	6⅝"
Tie Plate	¾"
Tie	7"
Ballast (min.)	8"
Waterproofing	1"
Box Girder	33"
	56¾"

NOTES

1. For track geometry, see Track Plans.
2. For details of Pedestrian Underpass, Ramps & Stairs, see PT400 sheets.

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES BR102-01 OF BR102-05

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WEST LAKE CORRIDOR
DYER TO HAMMOND, INDIANA

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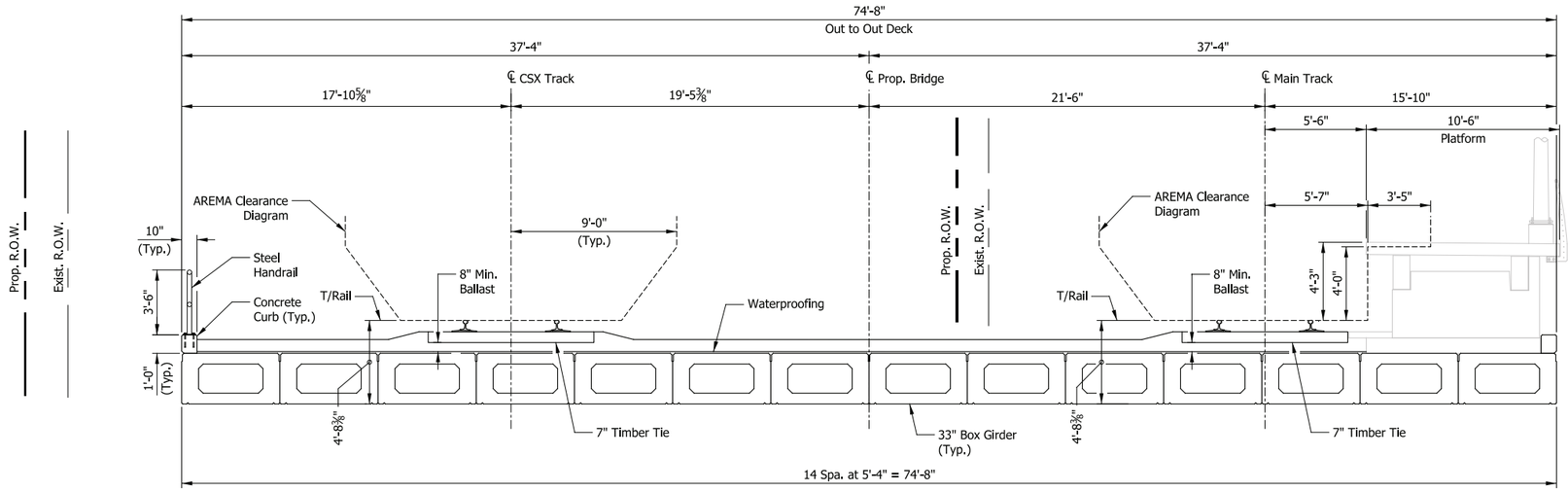
DRAWN:	HDR-JM
CHECKED:	HDR-EJW
DATE:	07/21/17

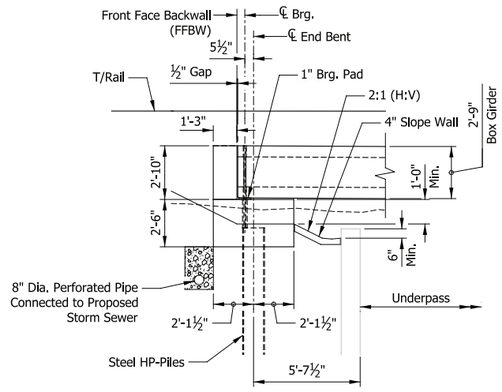
NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

BRIDGE 102 - CSX RR/NICTD OVER PEDESTRIAN UNDERPASS GENERAL PLAN & ELEVATION

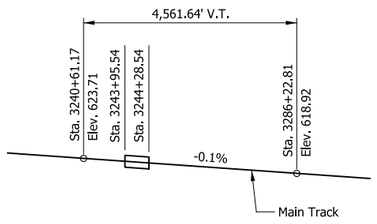
FILENAME: SHT_WL_ST_BR102_GenPlan_01.dgn
SCALE: AS NOTED
SHEET **21 OF 218**



TYPICAL SECTION
(Looking North)
Scale: ¼" = 1'-0"



SECTION THRU END BENT
Scale: ¼" = 1'-0"



TOP OF RAIL PROFILE
Not to Scale

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DATE:	07/21/17

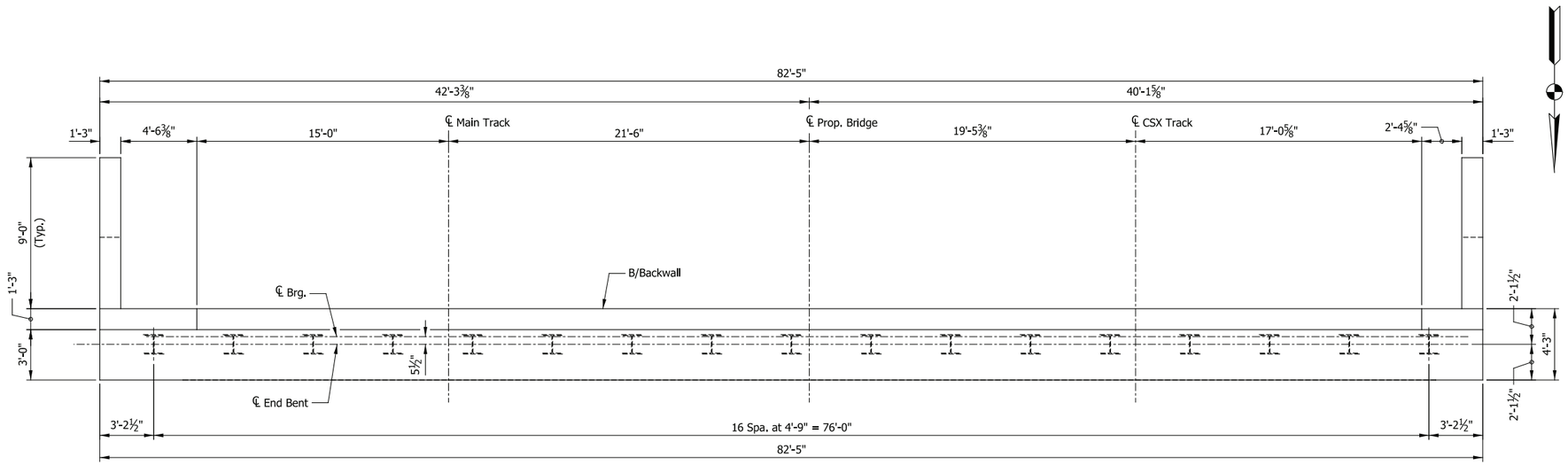
PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES BR102-02 OF BR102-05

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

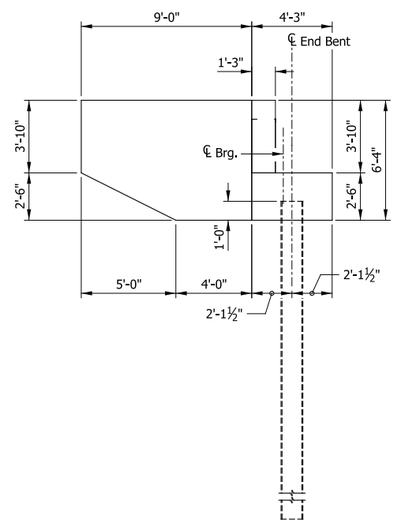
BRIDGE 102 - CSX RR/NICTD OVER PEDESTRIAN UNDERPASS TYPICAL DETAILS

FILENAME	SHT_WL_ST_BR102_TypDet_01.dgn	SHEET
SCALE	AS NOTED	22 OF 218



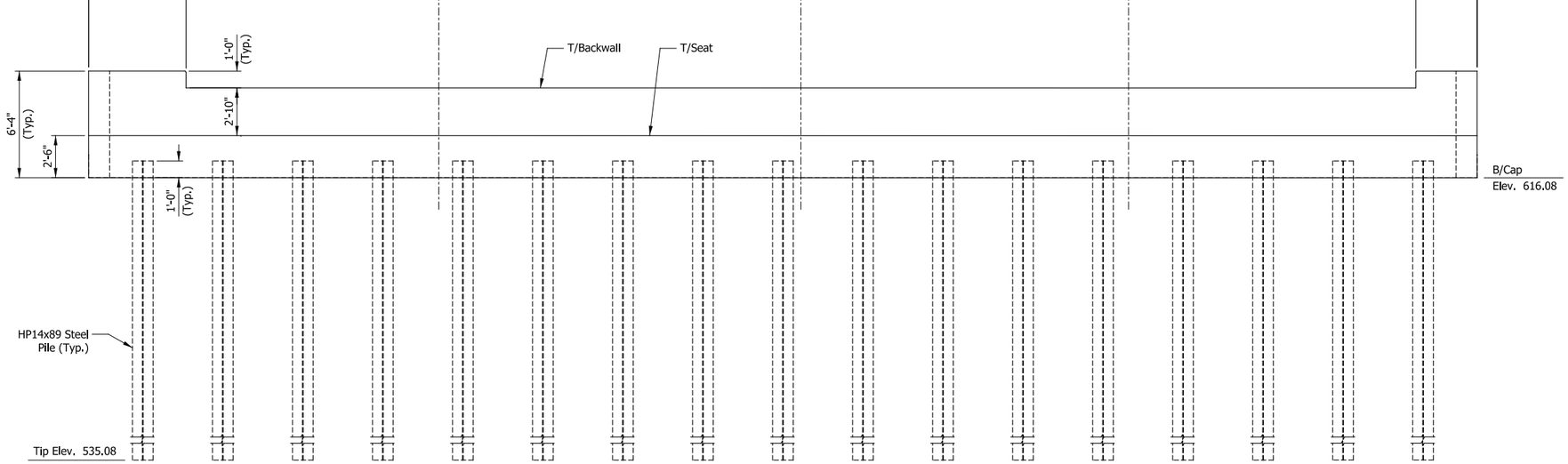
PLAN

Scale: ¼" = 1'-0"



END VIEW

Scale: ¼" = 1'-0"



ELEVATION

Scale: ¼" = 1'-0"

SOUTH END BENT

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES BR102-03 OF BR102-05

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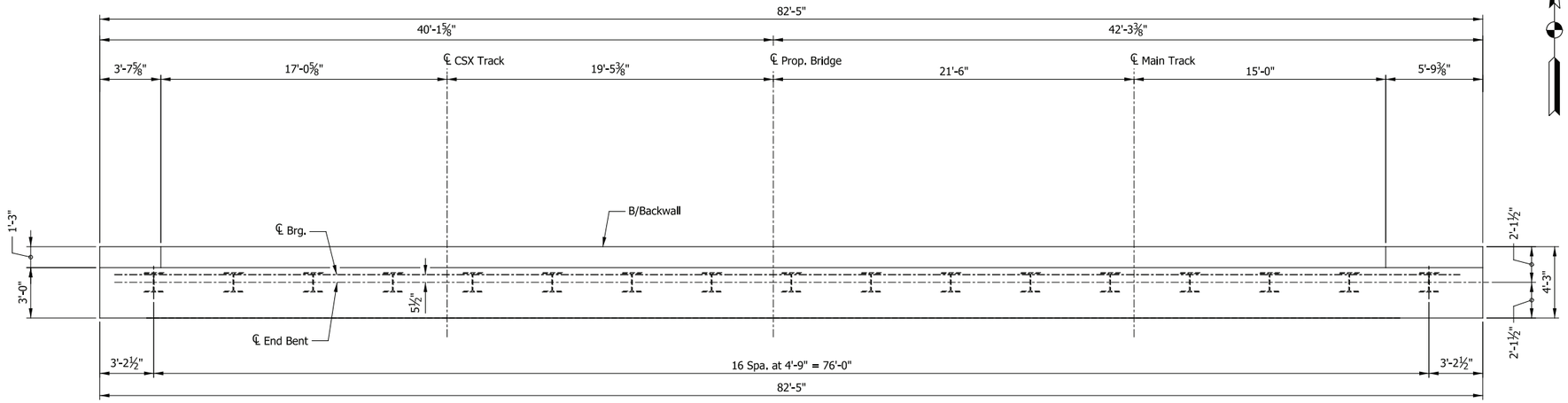
DRAWN:	HDR-JM
CHECKED:	HDR-EJW
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

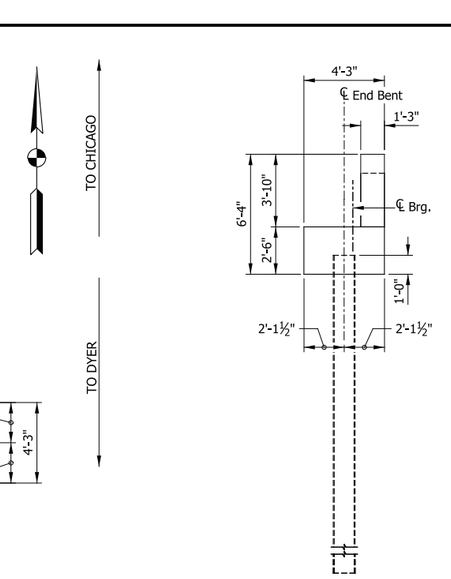
BRIDGE 102 - CSX RR/NICTD OVER PEDESTRIAN UNDERPASS SUBSTRUCTURE DETAILS (1 OF 2)

FILENAME	SHT_WL_ST_BR102_SubstrDet_01.dgn
SCALE	AS NOTED

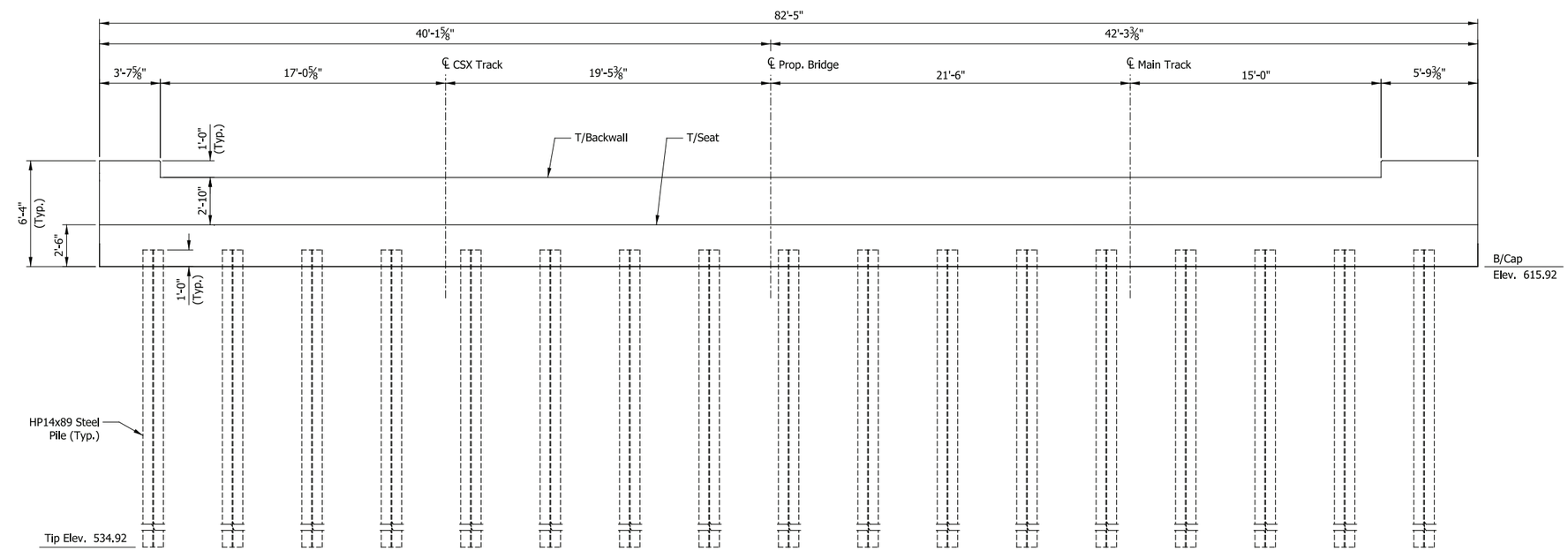
SHEET **23 OF 218**



PLAN
Scale: ¼" = 1'-0"



END VIEW
Scale: ¼" = 1'-0"



ELEVATION
Scale: ¼" = 1'-0"

NORTH END BENT

TO CHICAGO

TO DYER

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES BR102-04 OF BR102-05

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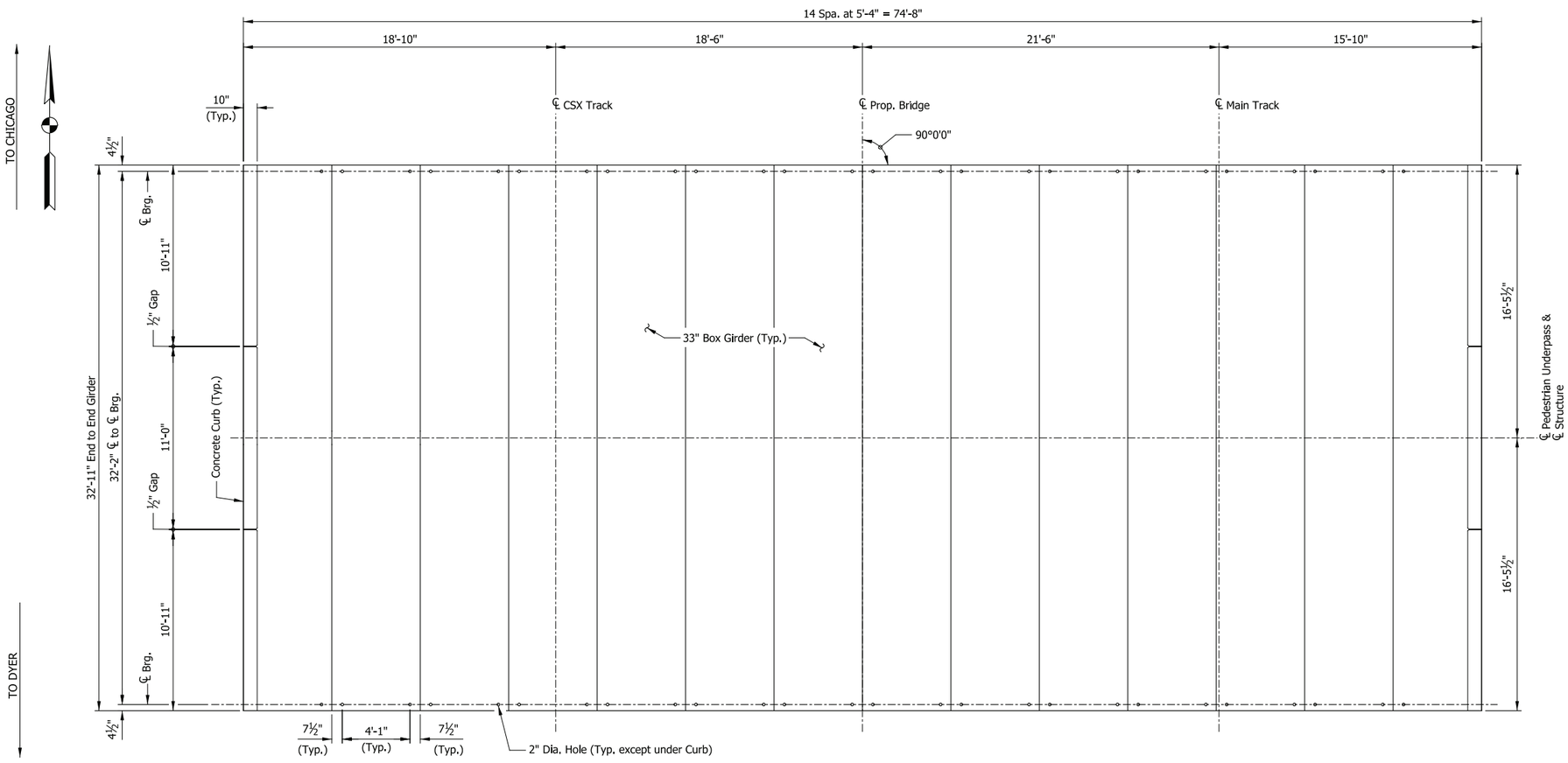
NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

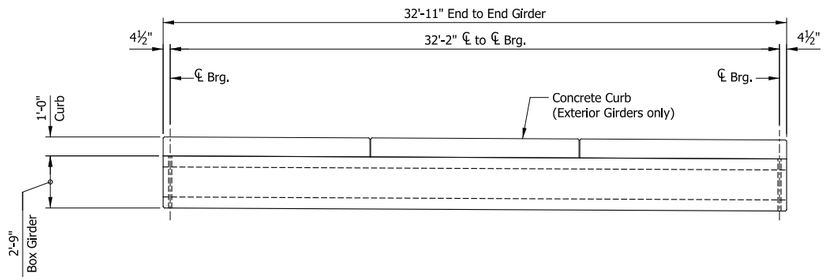
BRIDGE 102 - CSX RR/NICTD OVER PEDESTRIAN UNDERPASS SUBSTRUCTURE DETAILS (2 OF 2)

FILENAME	SHT_WL_ST_BR102_SubstrDet_02.dgn
SCALE	AS NOTED

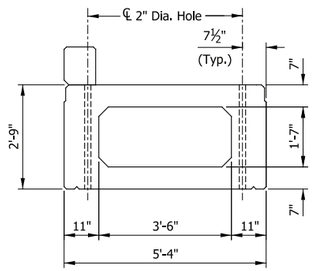
SHEET **24 OF 218**



FRAMING PLAN
Scale: ¼" = 1'-0"



BOX GIRDER ELEVATION
Scale: ¼" = 1'-0"



BOX GIRDER SECTION
Scale: ½" = 1'-0"

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES BR102-05 OF BR102-05

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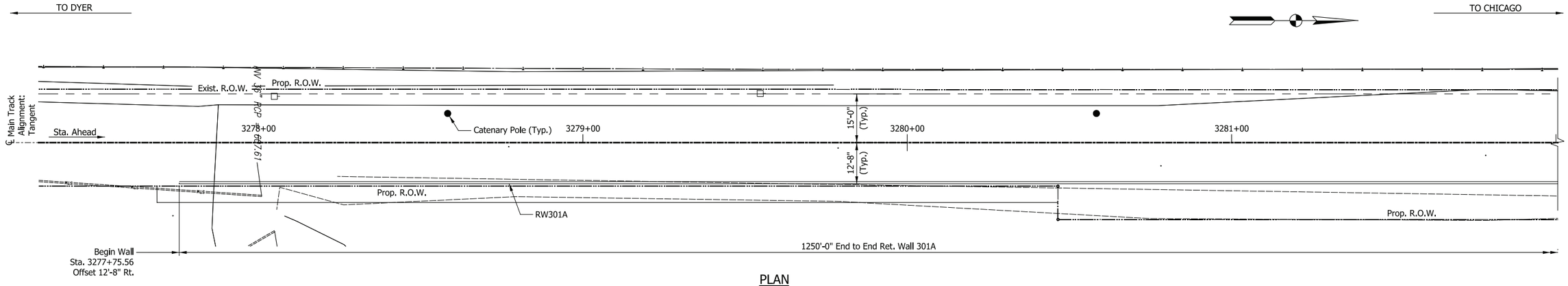
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

BRIDGE 102 - CSX RR/NICTD OVER PEDESTRIAN UNDERPASS FRAMING PLAN

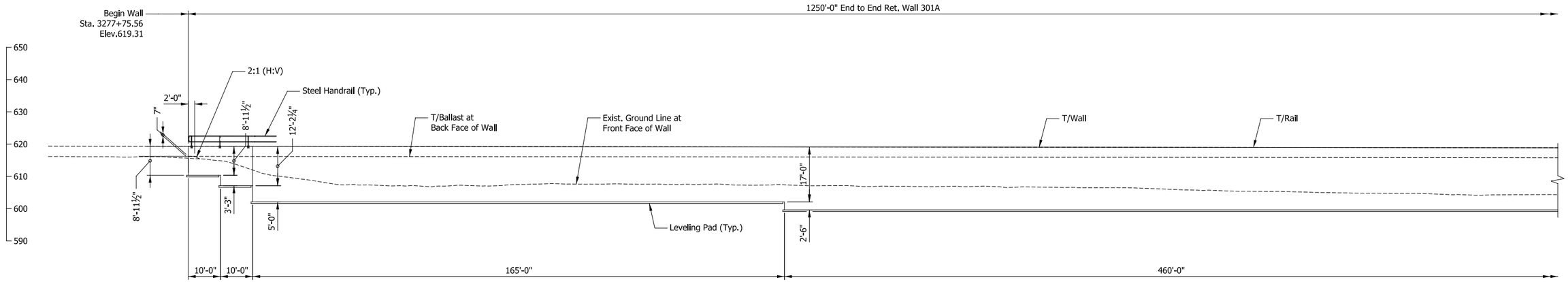
FILENAME	SHT_WL_ST_BR102_FramPlan_01.dgn
SCALE	AS NOTED

SHEET **25 OF 218**



PLAN

Scale: 1/16" = 1'-0"



ELEVATION - RW301A

Scale: 1/16" = 1'-0"

DESIGN DATA

SPECIFICATIONS:
American Railway Engineering and Maintenance-of-Way Association (A.R.E.M.A.), Manual for Railway Engineering, 2016, Chapter 8 and 15.

LIVE LOADS:
Cooper E-50 and Ballast Train per Structural Design Criteria

DESIGN STRESSES:
Steel: fy = 50,000 psi (ASTM A709 Gr 50)
Reinforcing: fy = 60,000 psi (ASTM A615)
Concrete: f'c = 4,000 psi (Min.)

SHEET INDEX

NOTES

1. For track geometry, see Track Plans.
2. For clarity Catenary Poles and associated infrastructure not shown in elevation views. For details, see System Plans.

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES RW301A-01 OF RW301A-06

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WEST LAKE CORRIDOR
DYER TO HAMMOND, INDIANA

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DRAWN:	ASP-TMT
CHECKED:	ASP-BNM
DATE:	07/21/17

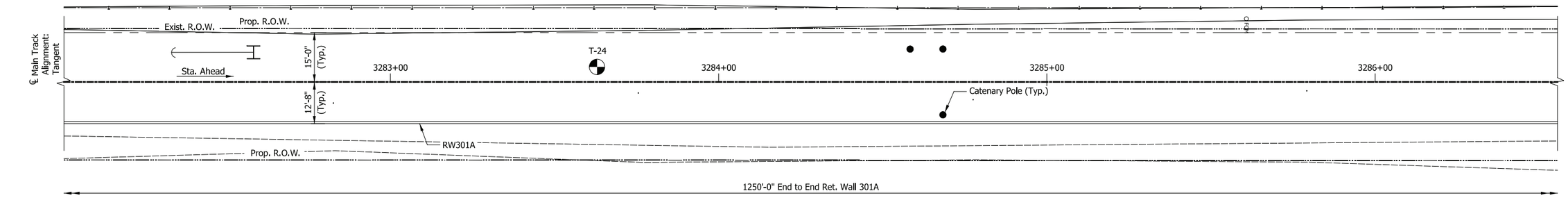
NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

RETAINING WALL 301A

GENERAL PLAN & ELEVATION (1 OF 3)

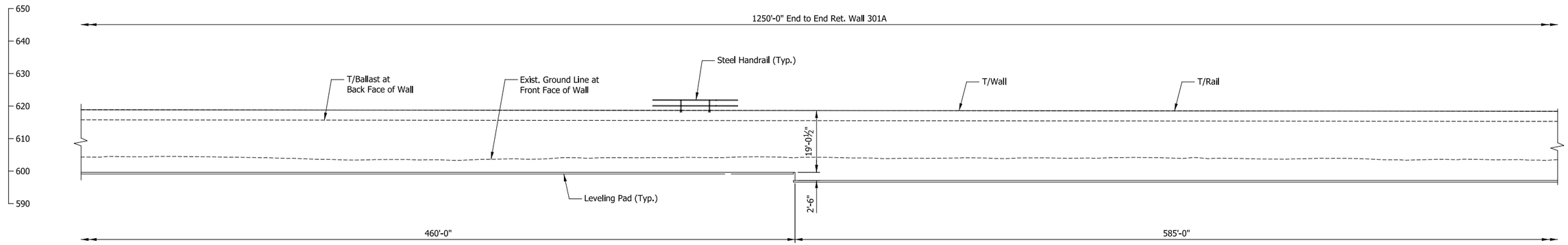
FILENAME	SHT_WL_ST_RW301A_GenPlan_01.dgn
SCALE	AS NOTED

SHEET **26 OF 218**



PLAN

Scale: 1/16" = 1'-0"



ELEVATION - RW301A

Scale: 1/16" = 1'-0"

NOTES

1. For track geometry, see Track Plans.

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES RW301A-02 OF RW301A-06

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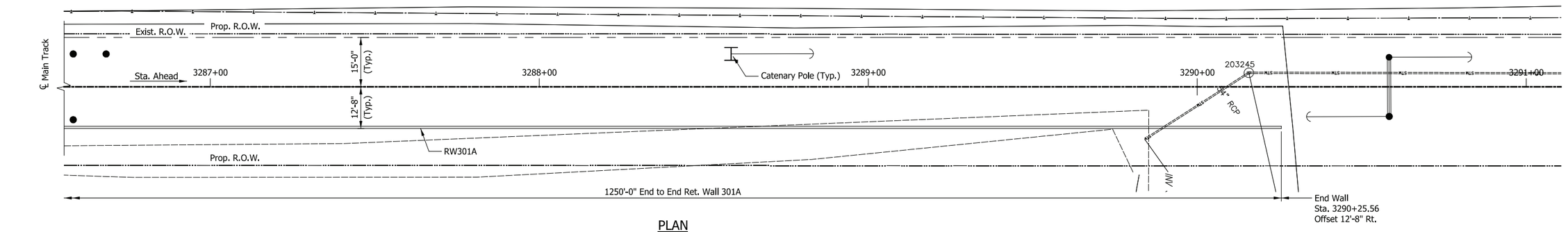
NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

RETAINING WALL 301A
GENERAL PLAN & ELEVATION (2 OF 3)

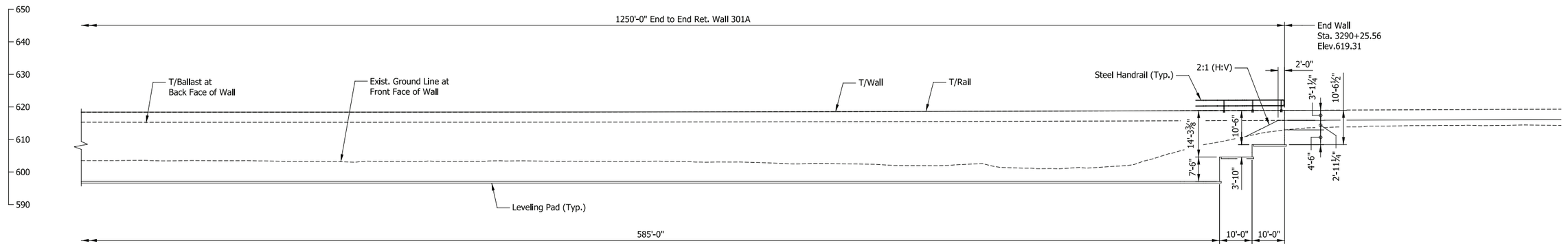
FILENAME	SHT_WL_ST_RW301A_GenPlan_02.dgn
SCALE	AS NOTED

SHEET **27 OF 218**



PLAN

Scale: 1/16" = 1'-0"



ELEVATION - RW301A

Scale: 1/16" = 1'-0"

NOTES

1. For track geometry, see Track Plans.

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES RW301A-03 OF RW301A-06

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WEST LAKE CORRIDOR

DYER TO HAMMOND, INDIANA

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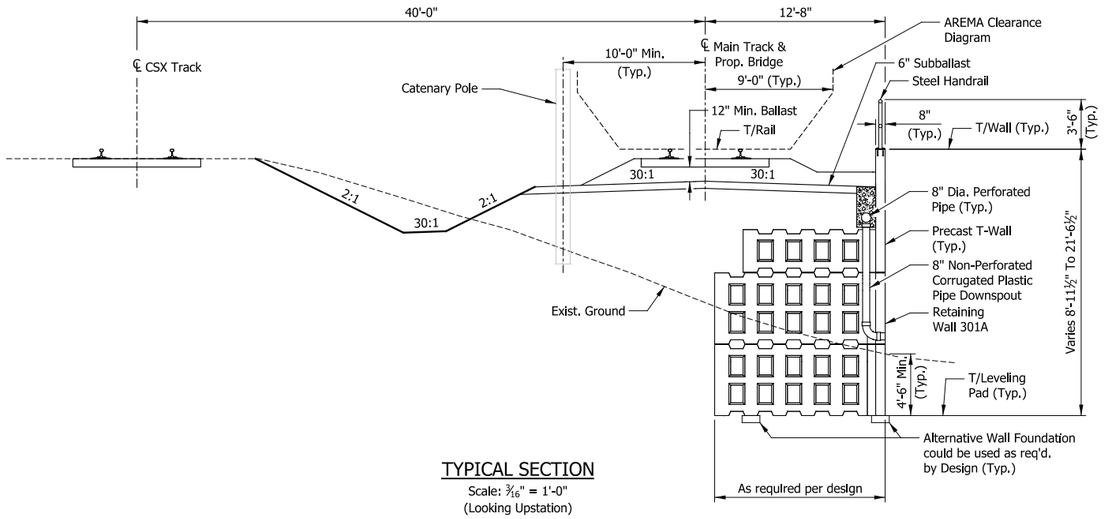
NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

RETAINING WALL 301A
GENERAL PLAN & ELEVATION (3 OF 3)

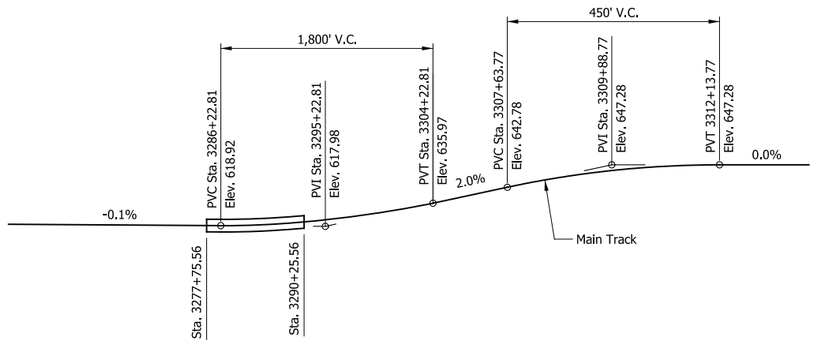
FILENAME	SHT_WL_ST_RW301A_GenPlan_03.dgn
SCALE	AS NOTED

SHEET **28 OF 218**



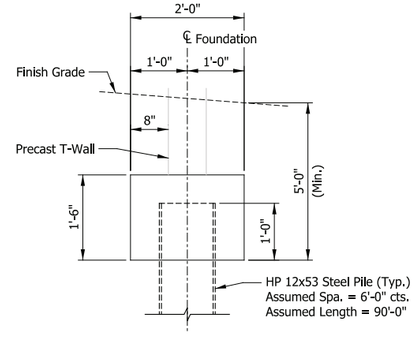
TYPICAL SECTION

Scale: 3/16" = 1'-0"
(Looking Upstation)



TOP OF RAIL PROFILE

Not to Scale



ALTERNATIVE WALL FOUNDATION

Scale: ¾" = 1'-0"

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES RW301A-04 OF RW301A-06

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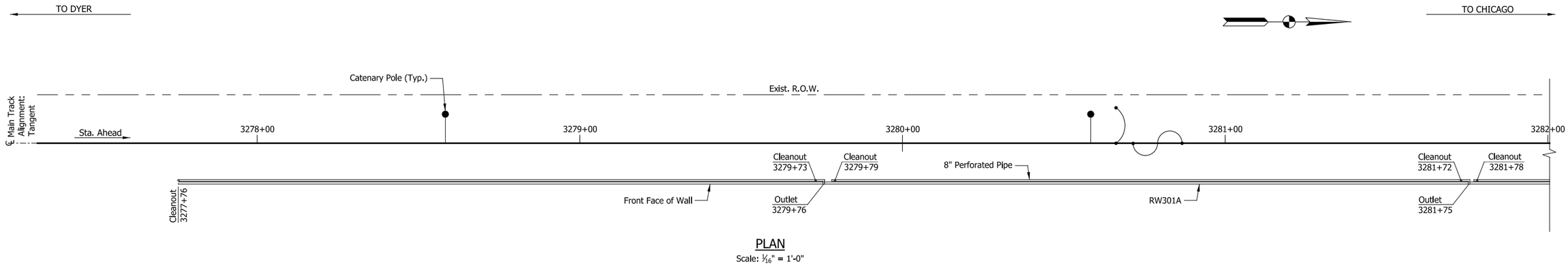
NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

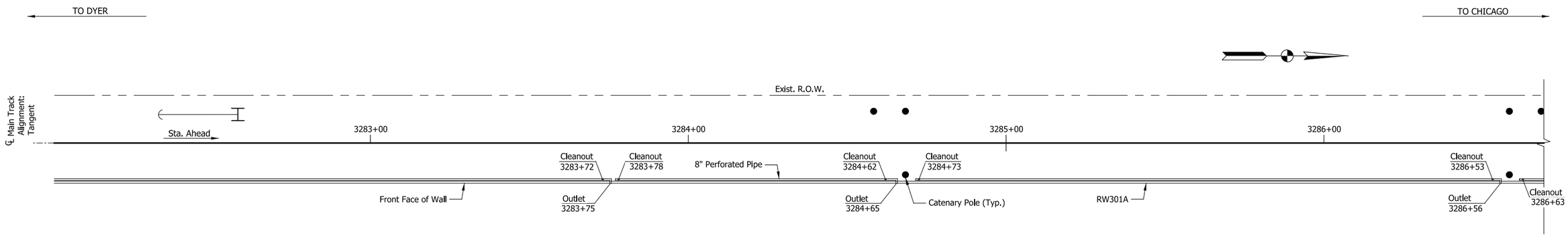
RETAINING WALL 301A
TYPICAL DETAILS

FILENAME	SHT_WL_ST_RW301A_TypDet_01.dgn	SHEET
SCALE	AS NOTED	29 OF 218



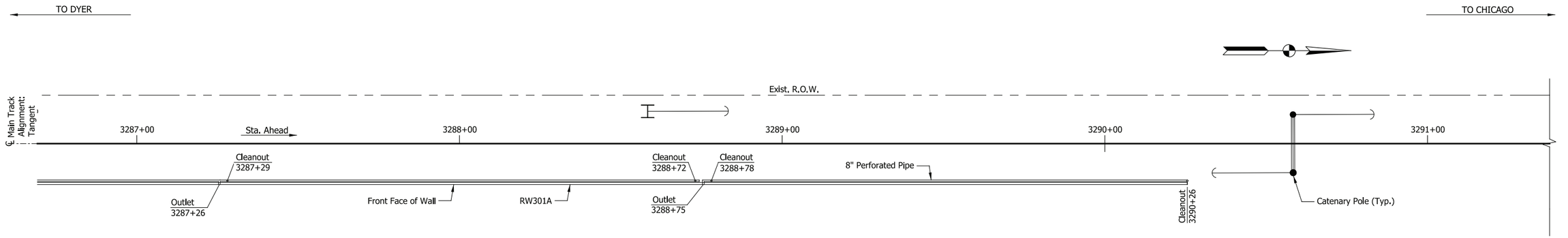
PLAN

Scale: 1/16" = 1'-0"



PLAN

Scale: 1/16" = 1'-0"



PLAN

Scale: 1/16" = 1'-0"

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES RW301A-05 OF RW301A-06

PLOT DATE: November 08, 2017 6:05:43 PM JMIGUS

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ISSUE	DATE	DESCRIPTION
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NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

WEST LAKE CORRIDOR

DYER TO HAMMOND, INDIANA

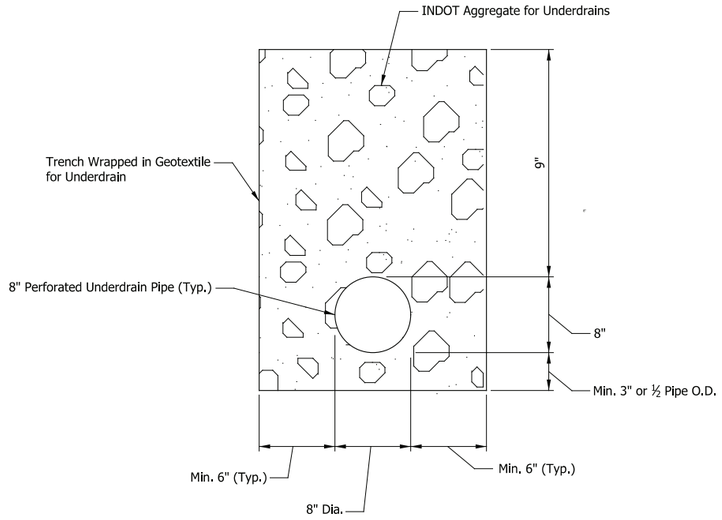
DESIGNED:	ASP-CAK
DRAWN:	ASP-CAK
CHECKED:	ASP-GAL
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

RETAINING WALL 301A
DRAINAGE PLAN

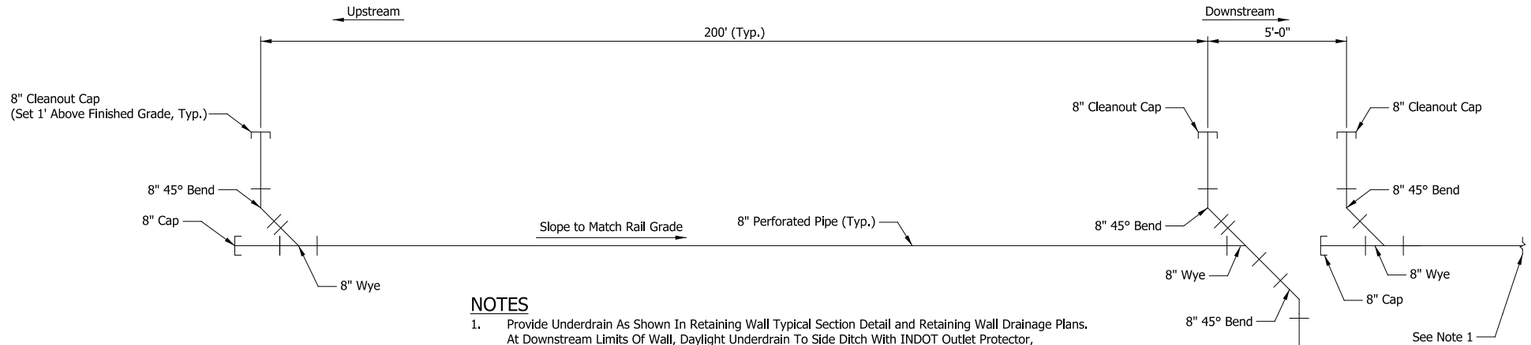
FILENAME	SHT_WL_ST_RW301A_DrainPlan_01.dgn
SCALE	AS NOTED

SHEET **30 OF 218**



TYPICAL UNDERDRAIN SECTION

Scale: ½" = 1'-0"

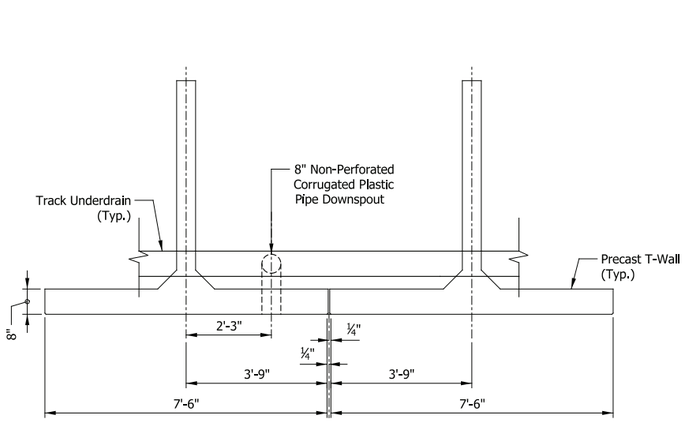


NOTES

1. Provide Underdrain As Shown In Retaining Wall Typical Section Detail and Retaining Wall Drainage Plans. At Downstream Limits Of Wall, Daylight Underdrain To Side Ditch With INDOT Outlet Protector, Type 2 And Rodent Screen.
2. All Fittings, Cleanout Piping, and Vertical Piping Shall Be Solid Wall.
3. Select Locations at Low Points in Rail Underdrain Profile May Include One Outlet Serving Underdrain Upstream in Both Directions. Provide Additional Fittings as Required. See Plan View for Locations.
4. Outlet Station Location in Plan View are Approximate. Final Constructed Outlet Stations / Wall Penetrations shall Occur at Locations Shown per Typical Wall Penetration Detail.

TYPICAL TRACK UNDERDRAIN SCHEMATIC AT RETAINING WALLS

Scale: Not to Scale

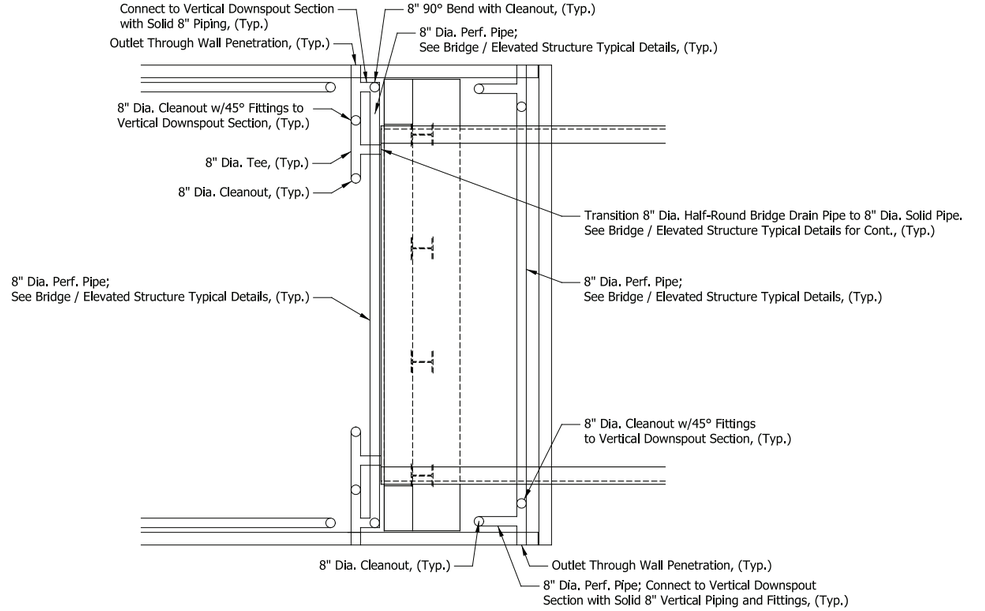


TYPICAL WALL PENETRATION DETAIL

Scale: ½" = 1'-0"

	Outlet Invert Elevation	
Outlet Station	Right	Left
3279+76	609.6	
3281+75	606.7	
3283+75	606.6	
3284+65	606.5	
3286+56	606.0	
3287+26	605.8	
3288+75	605.0	

UNDERDRAIN OUTLET ELEVATION SUMMARY TABLE



TYPICAL UNDERDRAIN PLAN DETAIL AT RETAINING WALL INTERFACE WITH BRIDGE OR ELEVATED STRUCTURE

Scale: Not to Scale

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES RW301A-06 OF RW301A-06

PLOT DATE: November 08, 2017 6:05:47 PM JMIGUS

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NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

DYER TO HAMMOND, INDIANA

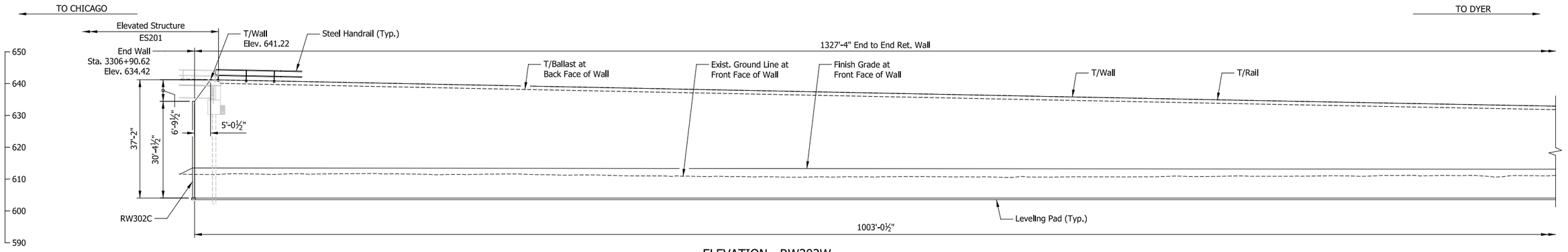
DESIGNED:	ASP-CAK
DRAWN:	ASP-CAK
CHECKED:	ASP-GAL
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

RETAINING WALL 301A
DRAINAGE DETAILS

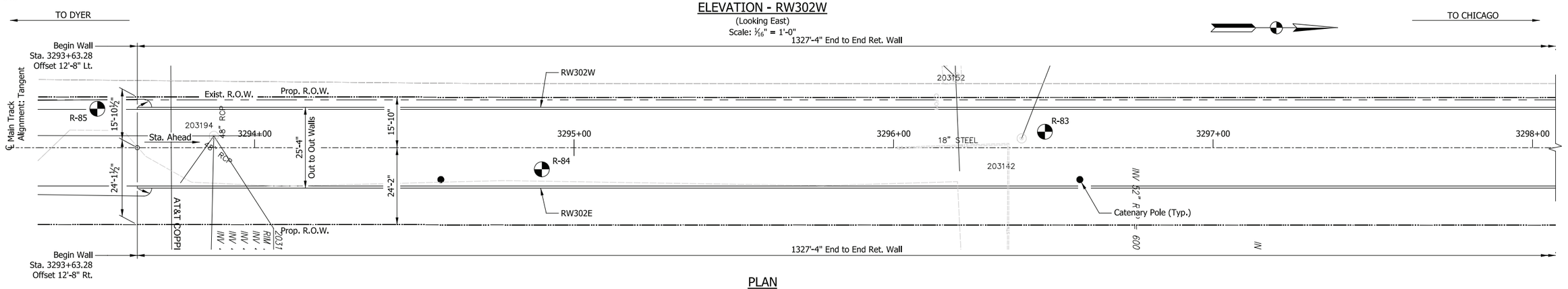
FILENAME	SHT_WL_ST_RW301A_DrainDet_01.dgn
SCALE	AS NOTED

SHEET **31 OF 218**



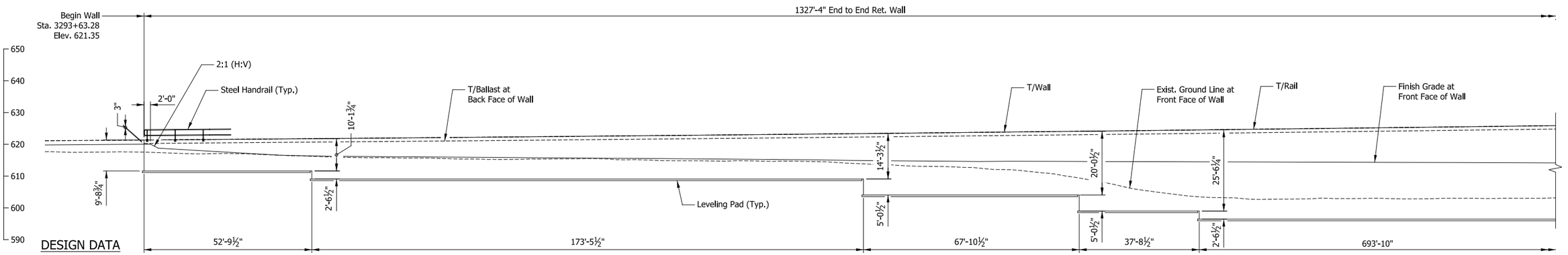
ELEVATION - RW302W

(Looking East)
Scale: 1/16" = 1'-0"



PLAN

Scale: 1/16" = 1'-0"



ELEVATION - RW302E

(Looking West)
Scale: 1/16" = 1'-0"

DESIGN DATA

SPECIFICATIONS:
American Railway Engineering and Maintenance-of-Way Association (A.R.E.M.A.), Manual for Railway Engineering, 2016, Chapter 8 and 15.

LIVE LOADS:
Cooper E-50 and Ballast Train per Structural Design Criteria

DESIGN STRESSES:
Steel: fy = 50,000 psi (ASTM A709 Gr 50)
Reinforcing: fy = 60,000 psi (ASTM A615)
Concrete: f'c = 4,000 psi (Min.)

SHEET INDEX

NOTES

1. For track geometry, see Track Plans.
2. For clarity Catenary Poles and associated infrastructure not shown in elevation views. For details, see System Plans.

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES RW302-01 OF RW302-06

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ISSUE	DATE	DESCRIPTION

NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

DYER TO HAMMOND, INDIANA

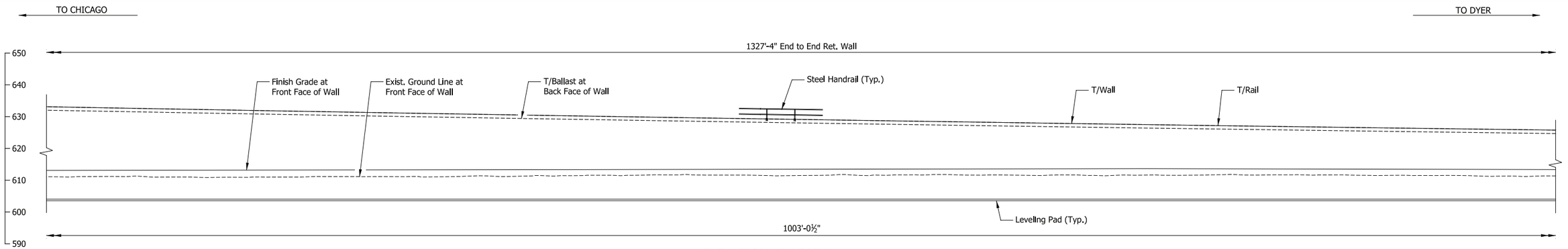
DESIGNED:	HDR-EJW
DRAWN:	HDR-JM
CHECKED:	HDR-EJW
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

RETAINING WALLS 302W & 302E
GENERAL PLAN & ELEVATION (1 OF 3)

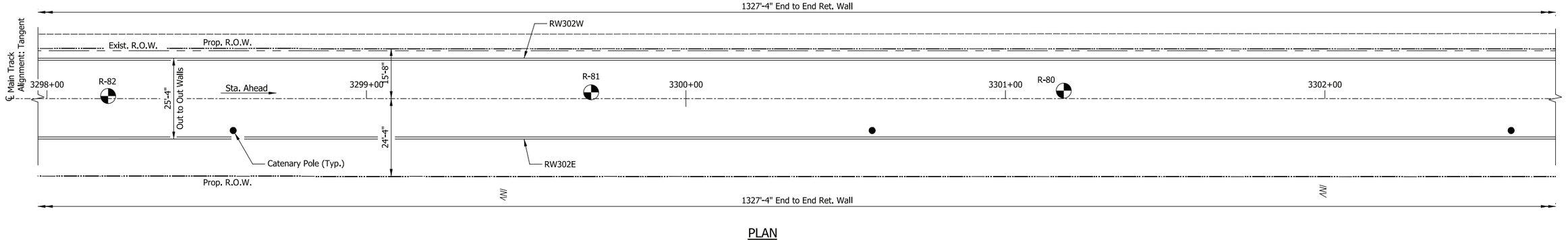
FILENAME	SHT_WL_ST_RW302_GenPlan_01.dgn
SCALE	AS NOTED

SHEET **32 OF 218**



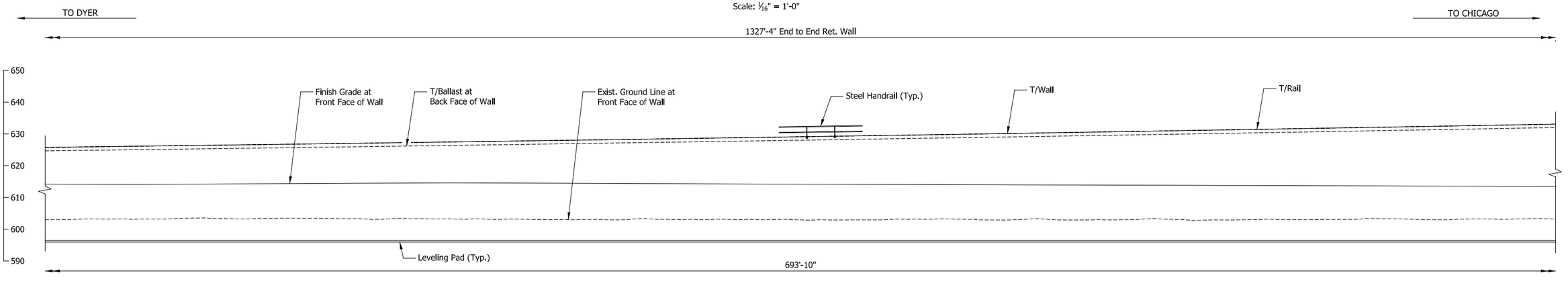
ELEVATION - RW302W

(Looking East)
Scale: 1/16" = 1'-0"



PLAN

Scale: 1/16" = 1'-0"



ELEVATION - RW302E

(Looking West)
Scale: 1/16" = 1'-0"

NOTES

1. For track geometry, see Track Plans.
2. For clarity Catenary Poles and associated infrastructure not shown in elevation views. For details, see System Plans.

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES RW302-02 OF RW302-06

PLOT DATE: November 08, 2017 6:06:02 PM JMIGUS

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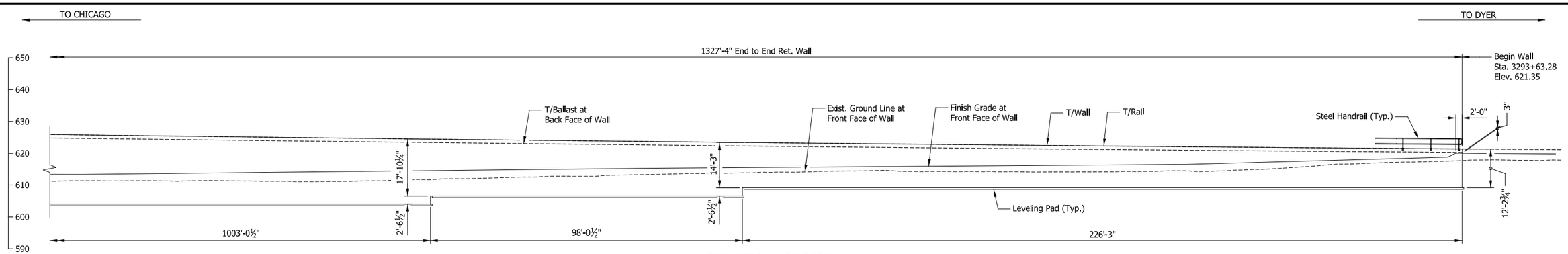
NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

RETAINING WALLS 302W & 302E
GENERAL PLAN & ELEVATION (2 OF 3)

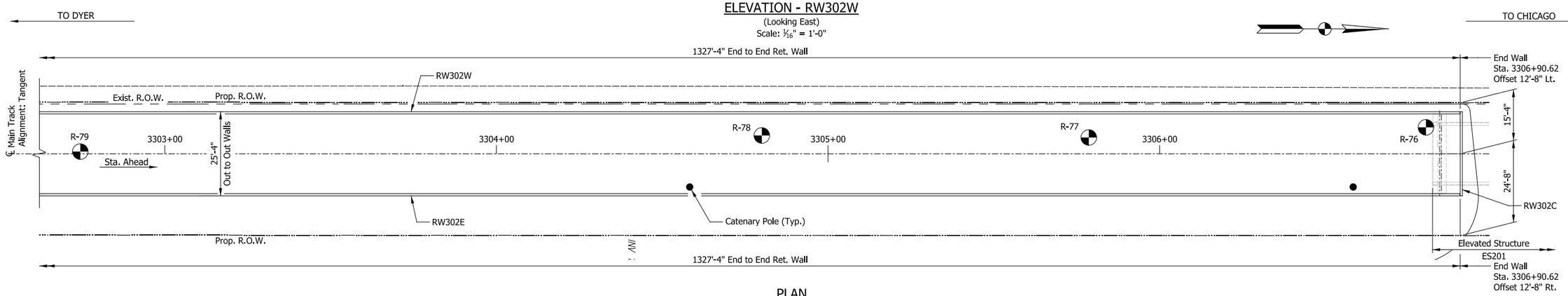
FILENAME	SHT_WL_ST_RW302_GenPlan_02.dgn
SCALE	AS NOTED

SHEET **33 OF 218**



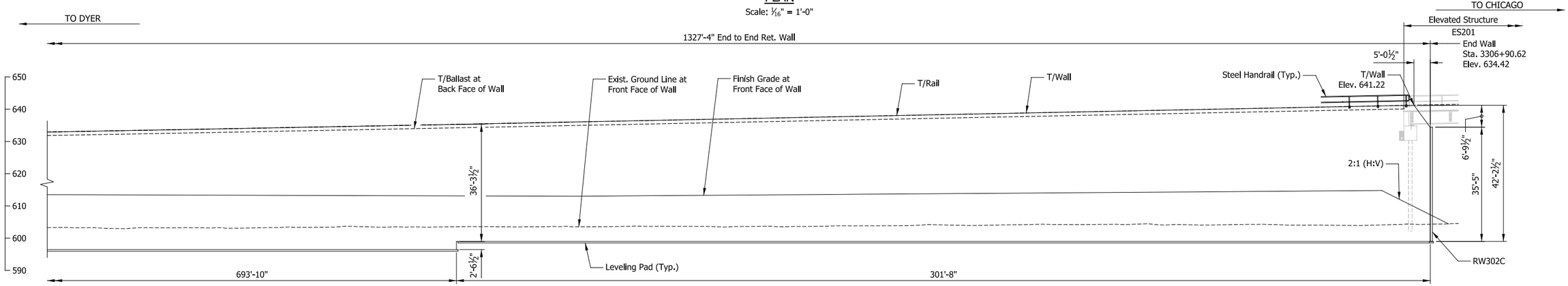
ELEVATION - RW302W

(Looking East)
Scale: 1/16" = 1'-0"



PLAN

Scale: 1/16" = 1'-0"



ELEVATION - RW302E

(Looking West)
Scale: 1/16" = 1'-0"

NOTES

1. For track geometry, see Track Plans.
2. For clarity Catenary Poles and associated infrastructure not shown in elevation views. For details, see System Plans.

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES RW302-03 OF RW302-06

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WEST LAKE CORRIDOR
DYER TO HAMMOND, INDIANA

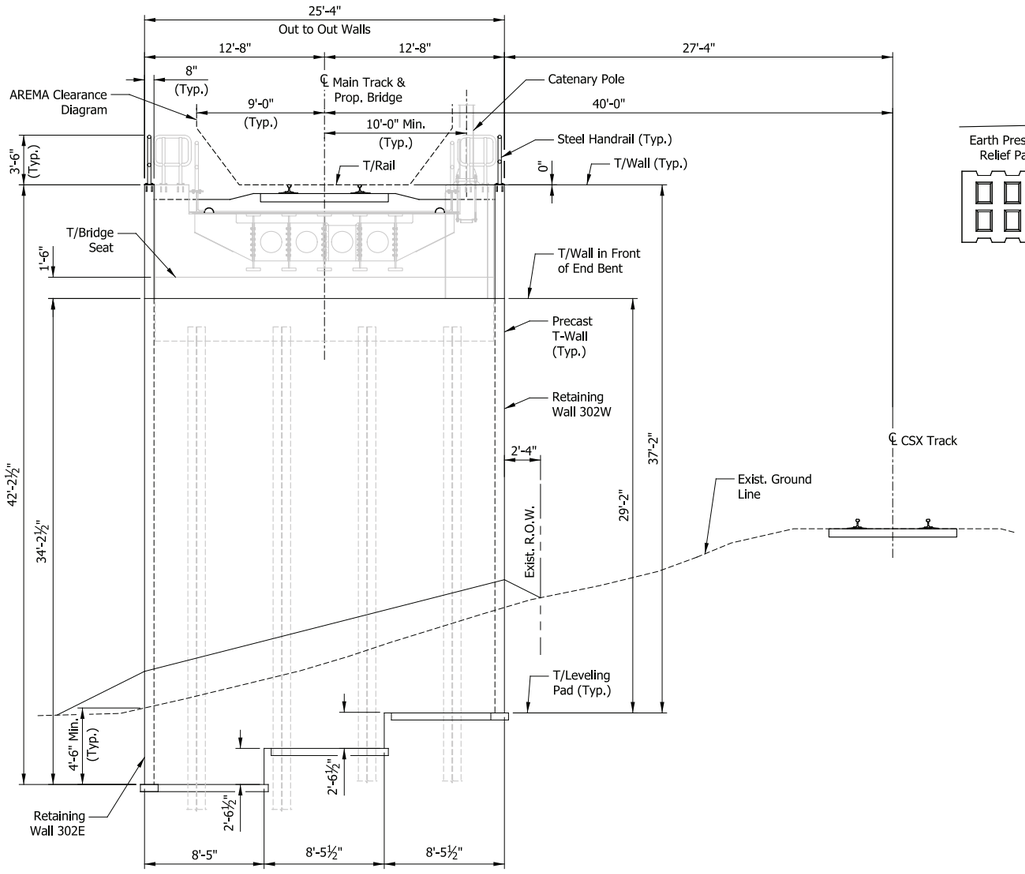
DESIGNED:	HDR-EJW
DRAWN:	HDR-JM
CHECKED:	HDR-EJW
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

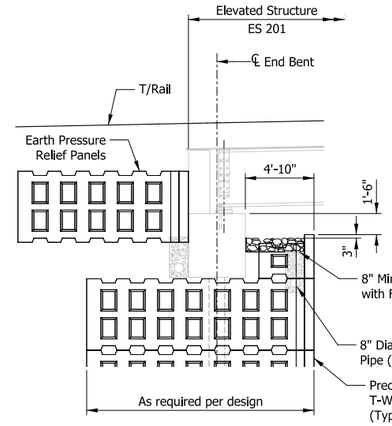
RETAINING WALLS 302W & 302E
GENERAL PLAN & ELEVATION (3 OF 3)

FILENAME	SHT_WL_ST_RW302_GenPlan_03.dgn
SCALE	AS NOTED

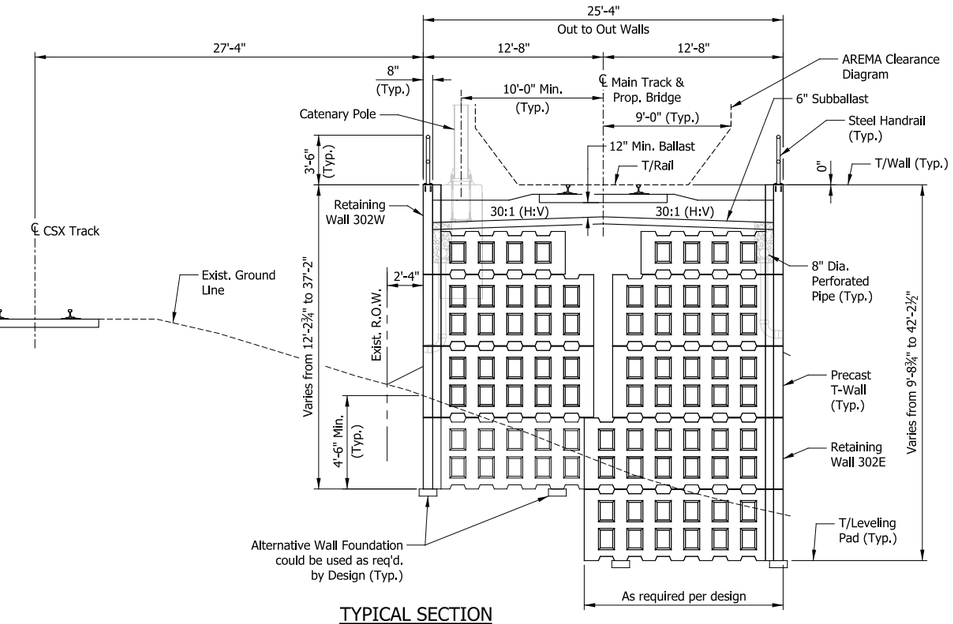
SHEET **34 OF 218**



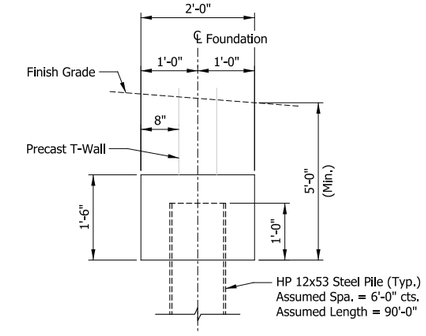
ELEVATION - RET. WALL 302C
(Looking Downstation)
Scale: 3/16" = 1'-0"



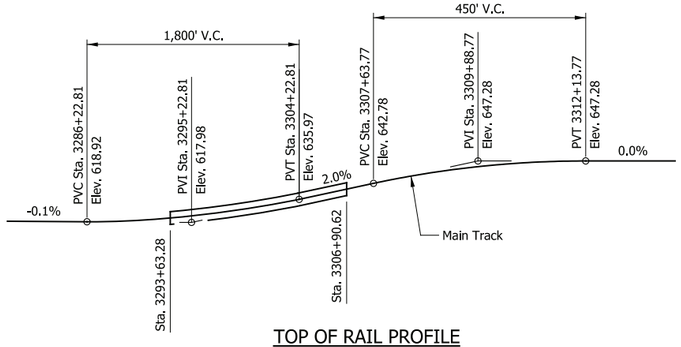
SECTION THRU END BENT
Scale: 3/16" = 1'-0"



TYPICAL SECTION
(Looking Upstation)
Scale: 3/16" = 1'-0"



ALTERNATIVE WALL FOUNDATION
Scale: ¾" = 1'-0"



TOP OF RAIL PROFILE
Not to Scale

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES RW302-04 OF RW302-06

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DESIGNED:	HDR-EJW
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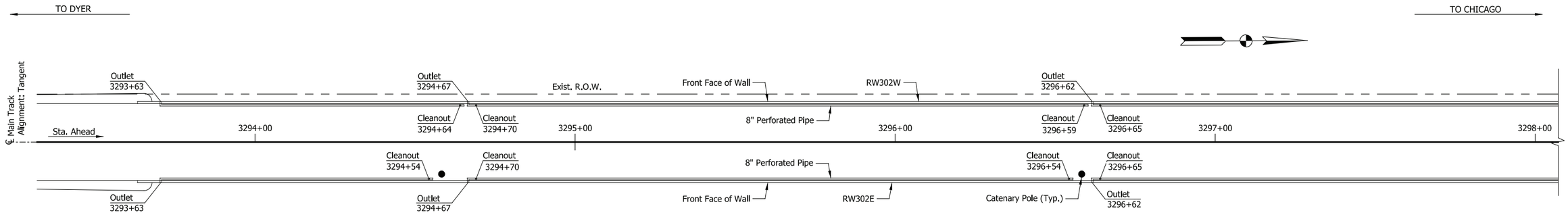
CHECKED:	HDR-EJW
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

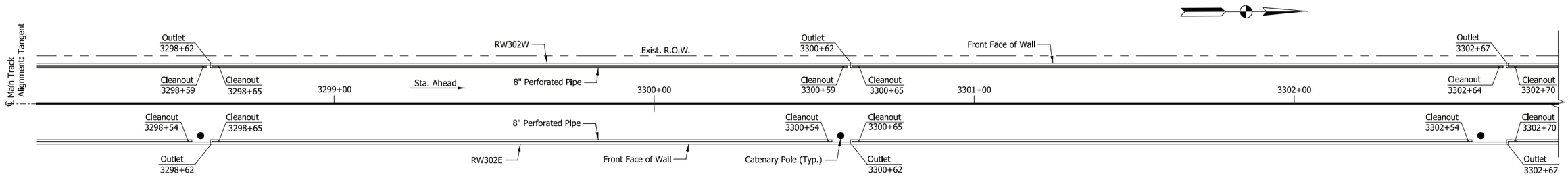
RETAINING WALLS 302W & 302E
TYPICAL DETAILS

FILENAME	SHT_WL_ST_RW302_TypDet_01.dgn
SCALE	AS NOTED

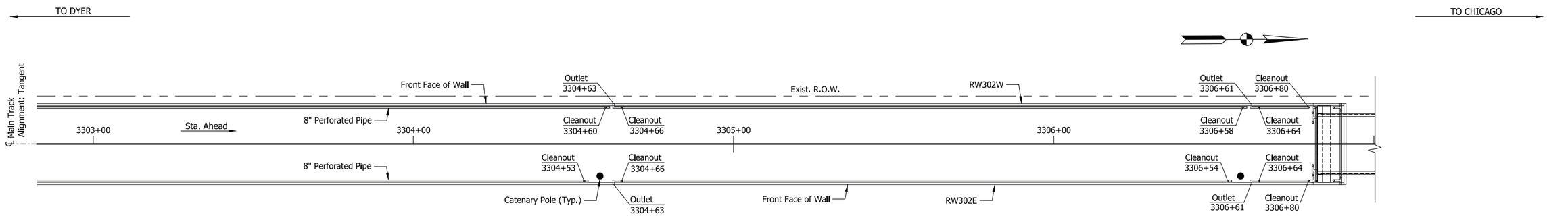
SHEET **35 OF 218**



PLAN
Scale: 1/16" = 1'-0"



PLAN
Scale: 1/16" = 1'-0"



PLAN
Scale: 1/16" = 1'-0"

Note:
Refer to Drainage Detail Sheet for Additional Underdrains Adjacent to Bridge.

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES RW302-05 OF RW302-06

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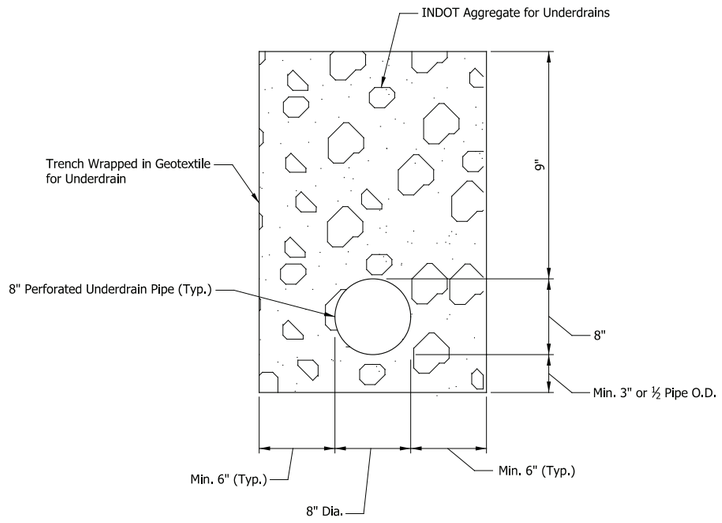
DRAWN:	ASP-CAK
CHECKED:	ASP-GAL
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

RETAINING WALLS 302W & 302E DRAINAGE PLAN

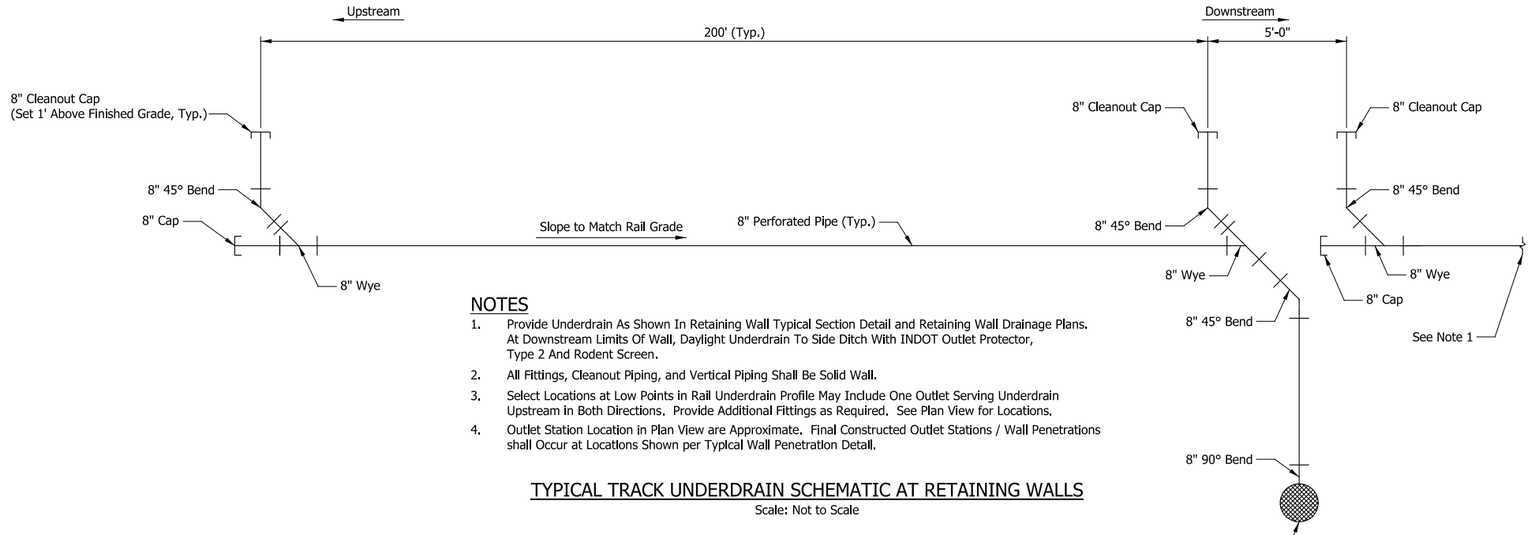
FILENAME	SHT_WL_ST_RW302_DrainPlan_01.dgn
SCALE	AS NOTED

SHEET **36 OF 218**



TYPICAL UNDERDRAIN SECTION

Scale: ½" = 1'-0"

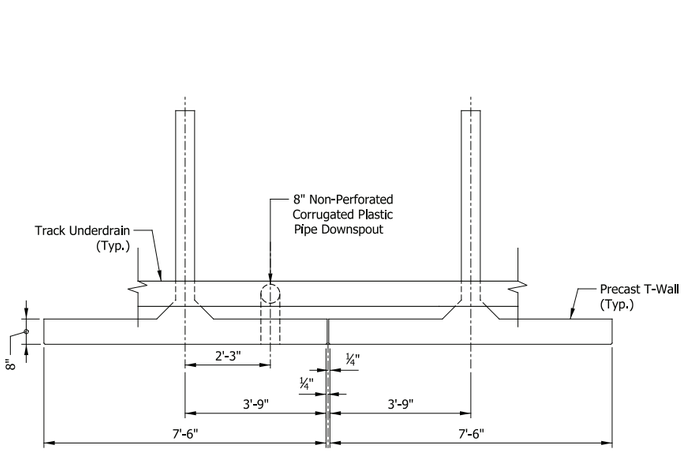


NOTES

1. Provide Underdrain As Shown In Retaining Wall Typical Section Detail and Retaining Wall Drainage Plans. At Downstream Limits Of Wall, Daylight Underdrain To Side Ditch With INDOT Outlet Protector, Type 2 And Rodent Screen.
2. All Fittings, Cleanout Piping, and Vertical Piping Shall Be Solid Wall.
3. Select Locations at Low Points in Rail Underdrain Profile May Include One Outlet Serving Underdrain Upstream in Both Directions. Provide Additional Fittings as Required. See Plan View for Locations.
4. Outlet Station Location in Plan View are Approximate. Final Constructed Outlet Stations / Wall Penetrations shall Occur at Locations Shown per Typical Wall Penetration Detail.

TYPICAL TRACK UNDERDRAIN SCHEMATIC AT RETAINING WALLS

Scale: Not to Scale

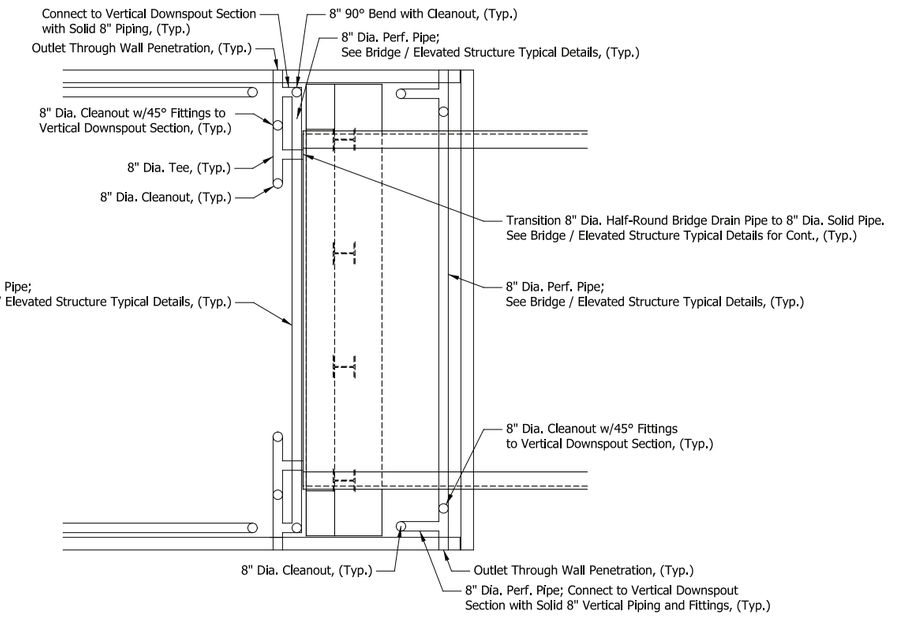


TYPICAL WALL PENETRATION DETAIL

Scale: ½" = 1'-0"

	Outlet Invert Elevation	
Outlet Station	Right	Left
3293+63	619.3	615.8
3294+67	617.4	616.4
3296+62	610.7	615.1
3298+62	605.3	614.8
3300+62	605.0	614.6
3302+67	605.3	614.0
3304+63	605.6	613.8
3306+61	606.0	615.2

UNDERDRAIN OUTLET ELEVATION SUMMARY TABLE



TYPICAL UNDERDRAIN PLAN DETAIL AT RETAINING WALL INTERFACE WITH BRIDGE OR ELEVATED STRUCTURE

Scale: Not to Scale

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES RW302-06 OF RW302-06

PLOT DATE: November 08, 2017 6:06:28 PM JMIGUS

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ISSUE	DATE	DESCRIPTION
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NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

DYER TO HAMMOND, INDIANA

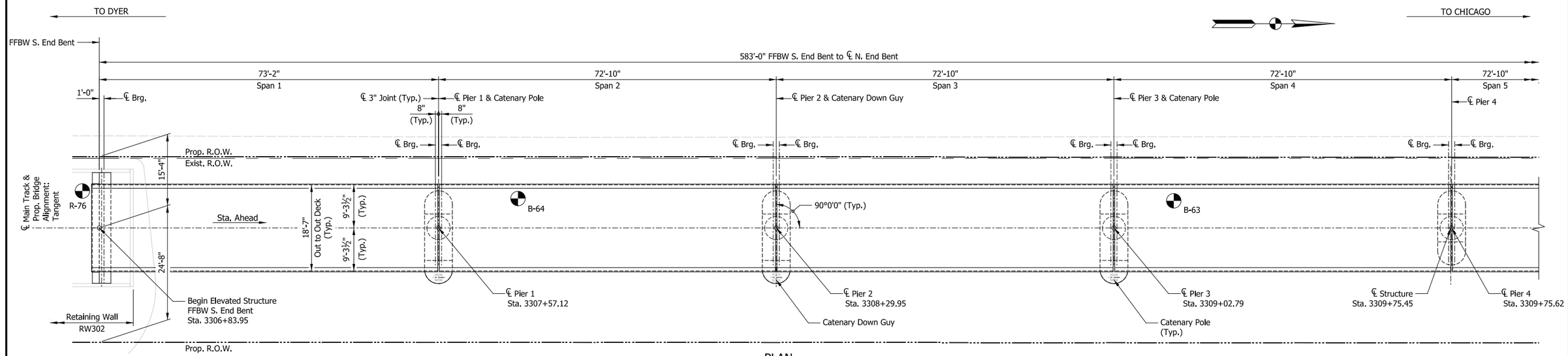
DESIGNED:	ASP-CAK
DRAWN:	ASP-CAK
CHECKED:	ASP-GAL
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

RETAINING WALLS 302W & 302E DRAINAGE DETAILS

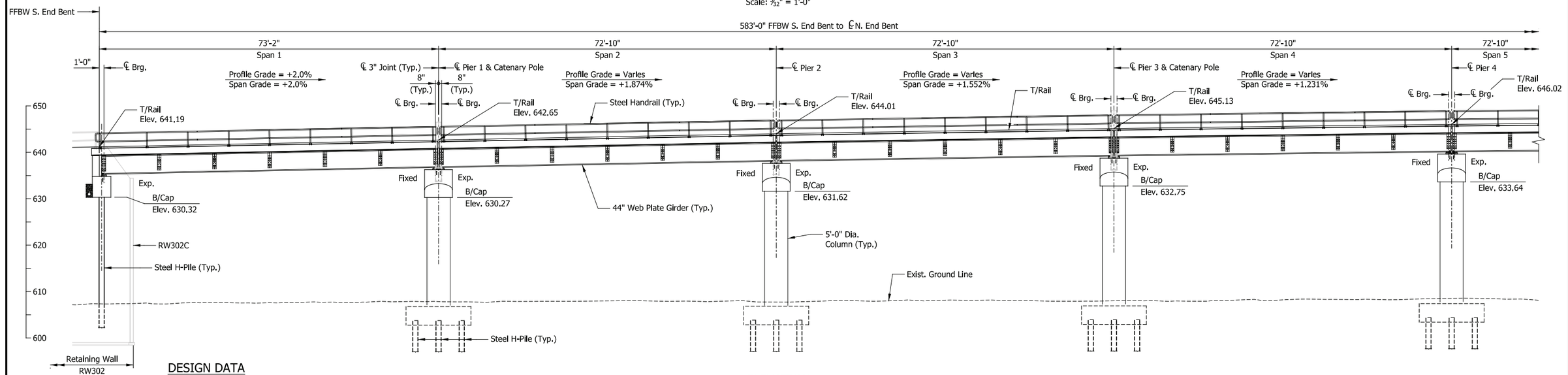
FILENAME	SHT_WL_ST_RW302_DrainDet_01.dgn
SCALE	AS NOTED

SHEET **37 OF 218**



PLAN

Scale: 3/32" = 1'-0"



ELEVATION

Scale: 3/32" = 1'-0"

DESIGN DATA

SPECIFICATIONS:
American Railway Engineering and Maintenance-of-Way Association (A.R.E.M.A.), Manual for Railway Engineering, 2016, Chapter 8 and 15.

LIVE LOADS:
Cooper E-50 and Ballast Train per Structural Design Criteria

DEAD LOADS:
Maximum Ballast Depth = 21 inches (at High End of Span)

DESIGN STRESSES:
Steel: fy = 50,000 psi (ASTM A709 Gr 50)
Reinforcing: fy = 60,000 psi (ASTM A615)
Concrete: f'c = 4,000 psi (Min.)

CONSTRUCTION DEPTH

Rail (115 RE)	6⅞"
Tie Plate	¾"
Tie	7"
Ballast (min.)	8"
Waterproofing	1"
Deck Plate	⅝"
Top Flange	2¼"
Web	44"
Bottom Flange	2¼"
	72½"

SHEET INDEX

NOTES

1. For track geometry, see Track Plans.
2. Downspouts not shown but required at all piers on side adjacent to low end of span.

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES ES201-01 OF ES201-06

PLOT DATE: November 08, 2017 6:06:40 PM JMTGUS

HDR Engineering, Inc.
8550 W. Bryn Mawr Ave., Suite 900
Chicago, IL 60631
www.hdrinc.com

ISSUE	DATE	DESCRIPTION

NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

WEST LAKE CORRIDOR
DYER TO HAMMOND, INDIANA

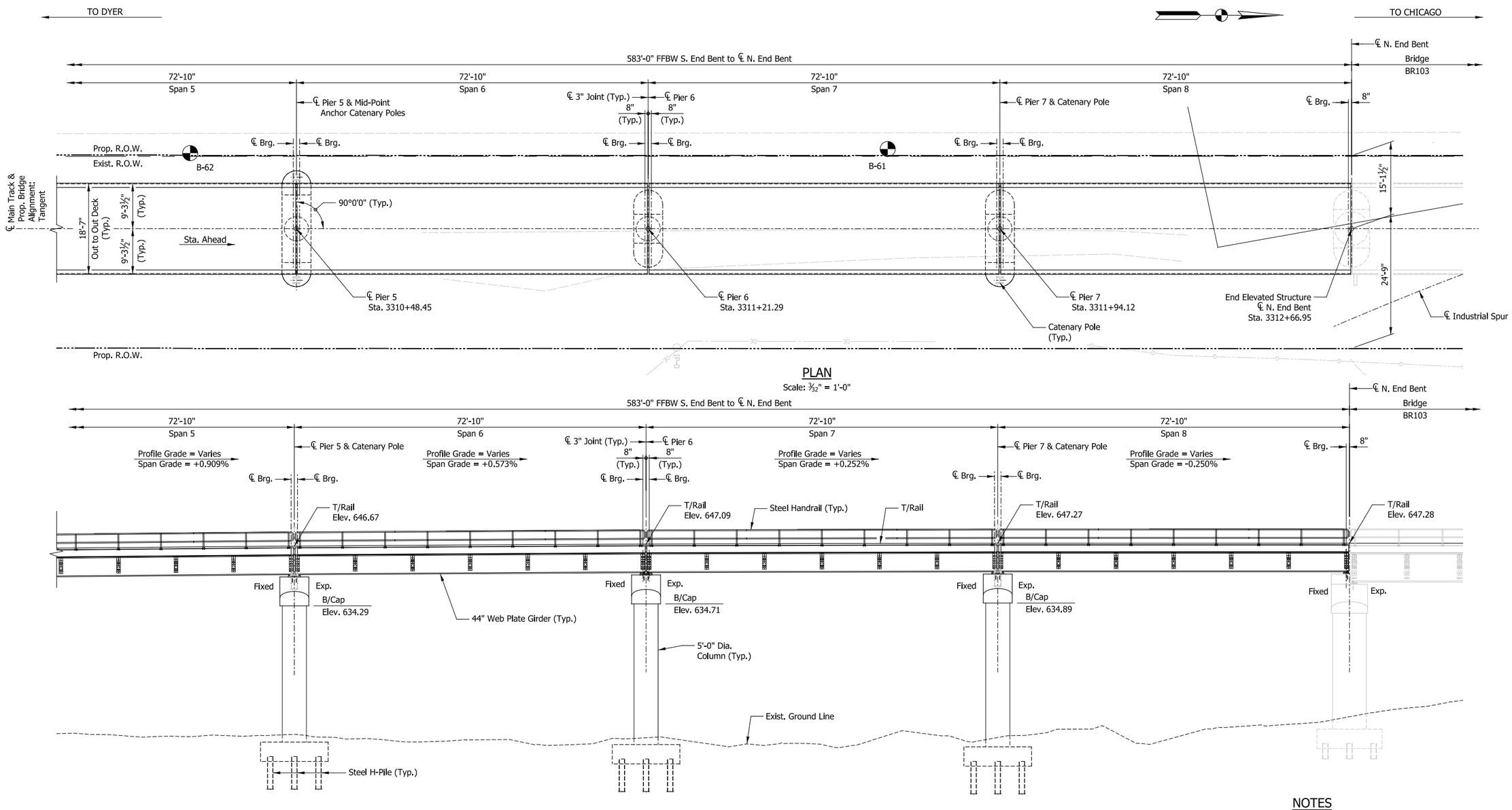
DESIGNED:	HDR-MAB
DRAWN:	HDR-JM
CHECKED:	HDR-JAL
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

ELEVATED STRUCTURE 201
GENERAL PLAN & ELEVATION (1 OF 2)

FILENAME	SHT_WL_ST_ES201_GenPlan_01.dgn
SCALE	AS NOTED

SHEET **38 OF 218**



PLAN

Scale: 3/32" = 1'-0"

ELEVATION

Scale: 3/32" = 1'-0"

NOTES

1. For track geometry, see Track Plans.
2. Downspouts not shown but required at all piers on side adjacent to low end of span.

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES ES201-02 OF ES201-06

PLOT DATE: November 08, 2017 6:06:48 PM JMIGUS

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NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

WEST LAKE CORRIDOR

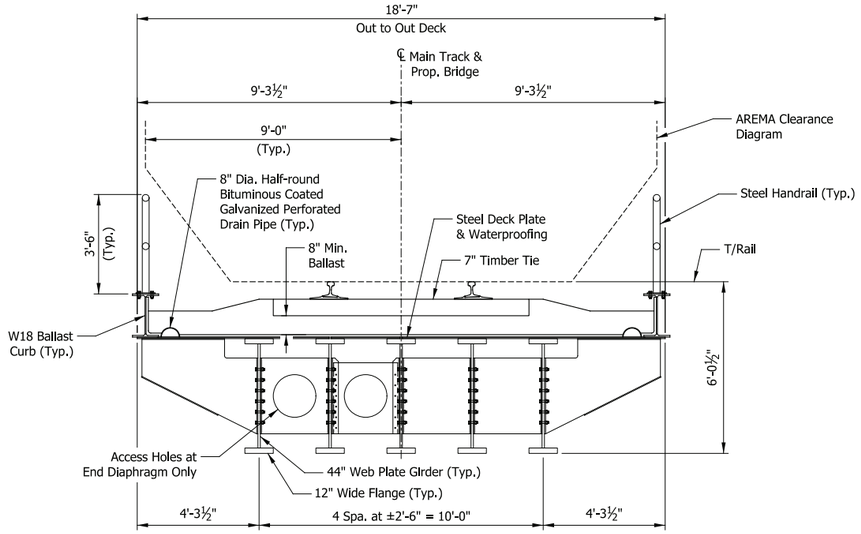
DYER TO HAMMOND, INDIANA

DESIGNED:	HDR-MAB
DRAWN:	HDR-JM
CHECKED:	HDR-JAL
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

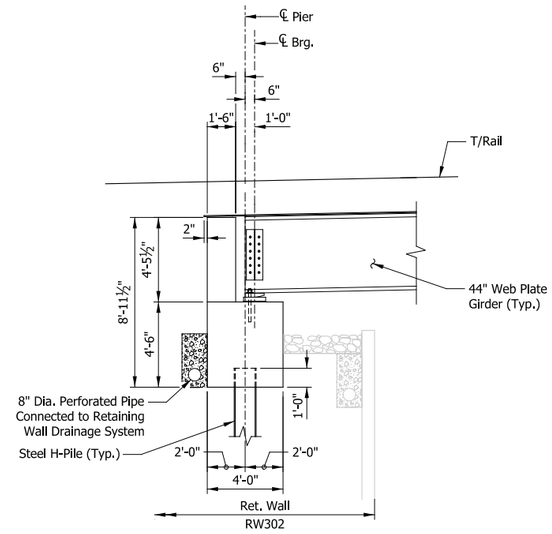
ELEVATED STRUCTURE 201
GENERAL PLAN & ELEVATION (2 OF 2)

FILENAME	SHT_WL_ST_ES201_GenPlan_02.dgn
SCALE	AS NOTED
SHEET	**39 OF 218**

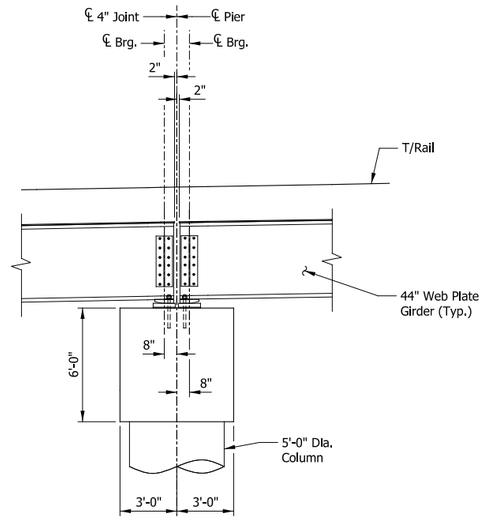


AT END DIAPHRAGM AT INTERMEDIATE DIAPHRAGM

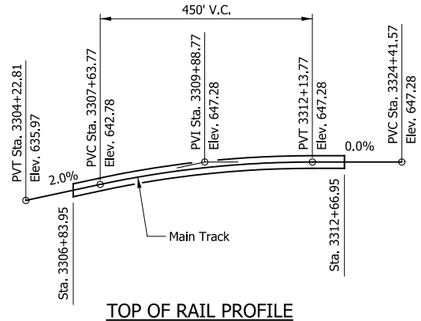
TYPICAL SECTION
Scale: ⅜" = 1'-0"



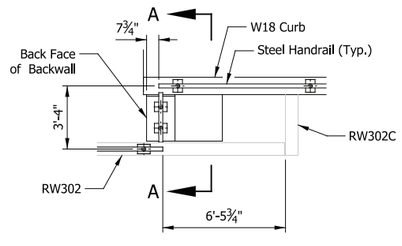
SECTION THRU S. END BENT
Scale: ¼" = 1'-0"



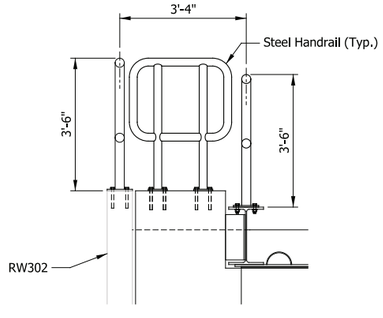
SECTION THRU PIER
Scale: ¼" = 1'-0"



TOP OF RAIL PROFILE
Not to Scale



HANDRAIL LAYOUT AT BRIDGE SOUTH CORNERS
Scale: ¼" = 1'-0"



VIEW A-A
Scale: ½" = 1'-0"

NOTES
1. Outfall from Drainage System to be routed and detailed similar to those provided for Retaining Wall Underdrains.

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES ES201-03 OF ES201-06

PLOT DATE: November 08, 2017 6:06:53 PM JMIGUS

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NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

DYER TO HAMMOND, INDIANA

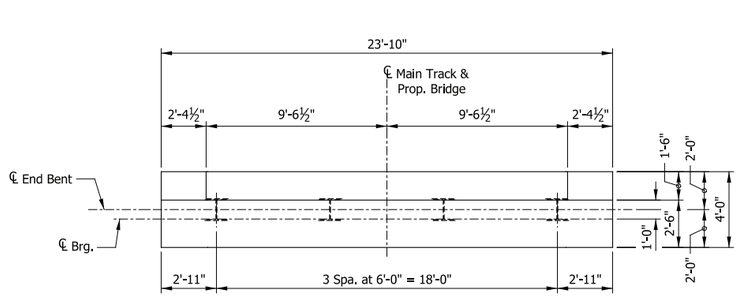
DESIGNED:	HDR-MAB
DRAWN:	HDR-JM
CHECKED:	HDR-JAL
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

ELEVATED STRUCTURE 201
TYPICAL DETAILS

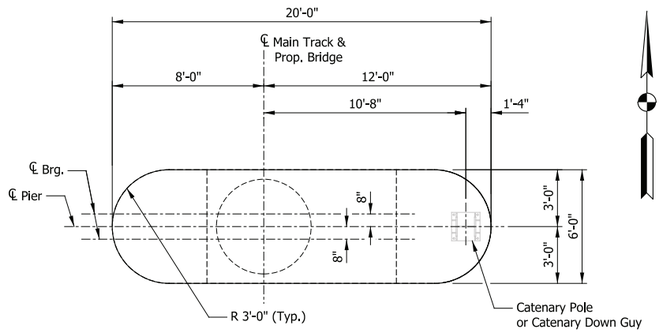
FILENAME	SHT_WL_ST_ES201_TypDet_01.dgn
SCALE	AS NOTED

SHEET **40 OF 218**



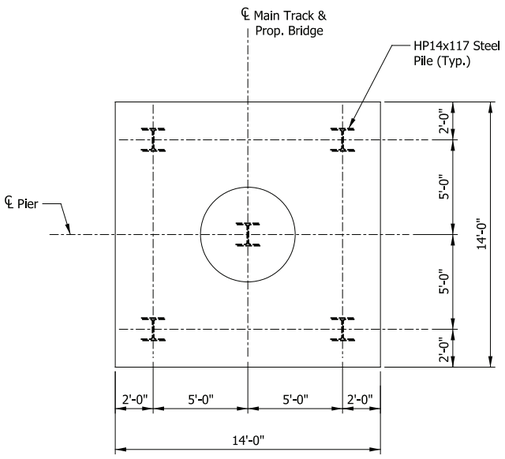
PLAN

Scale: ¼" = 1'-0"



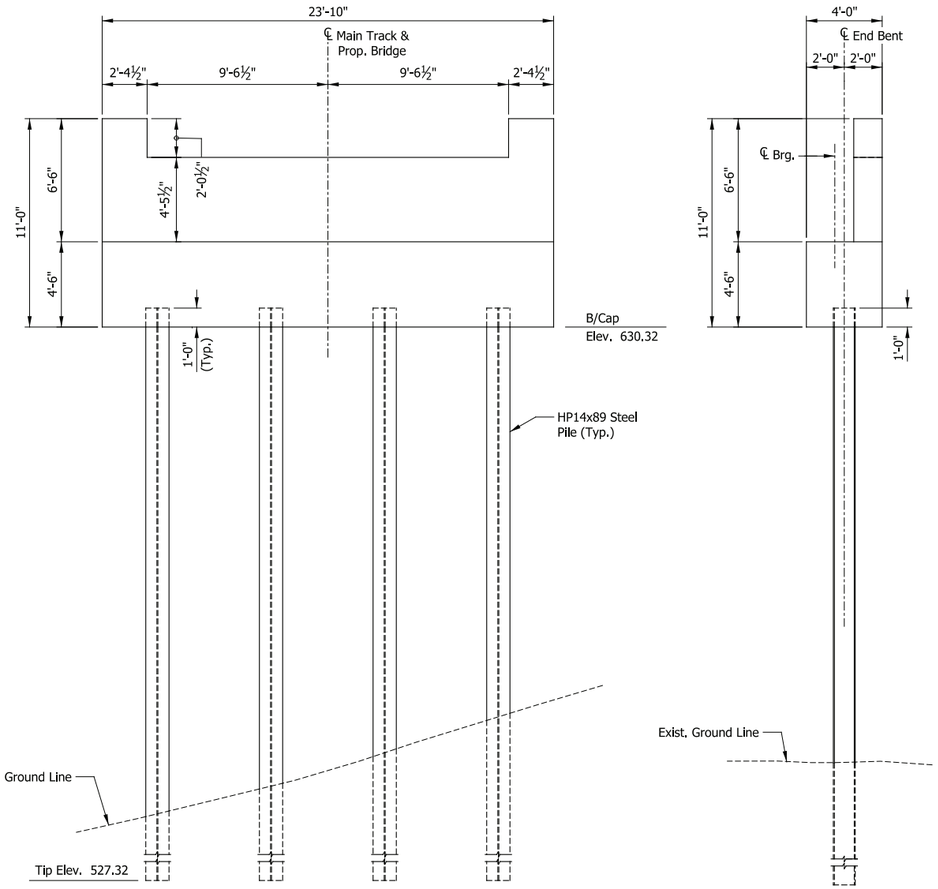
PLAN

Scale: ¼" = 1'-0"



FOOTING PLAN (TYP.)

Scale: ¼" = 1'-0"



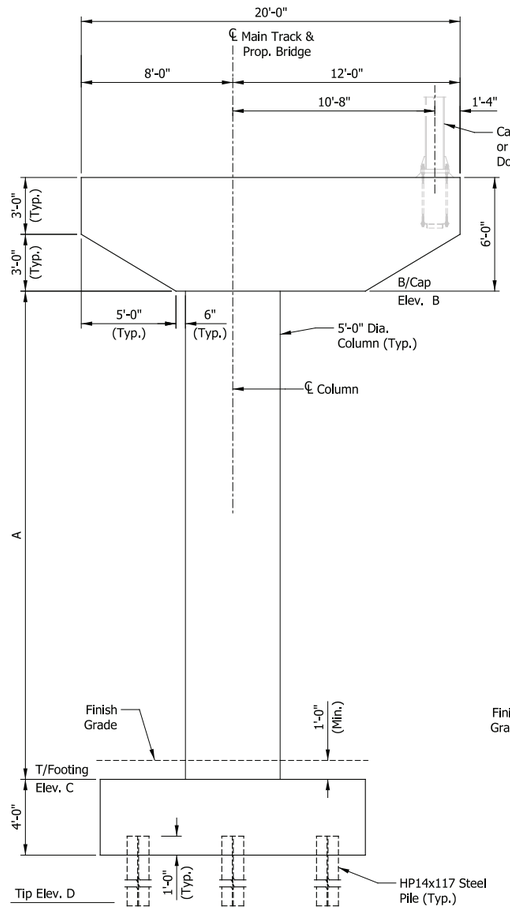
ELEVATION

Scale: ¼" = 1'-0"

END VIEW

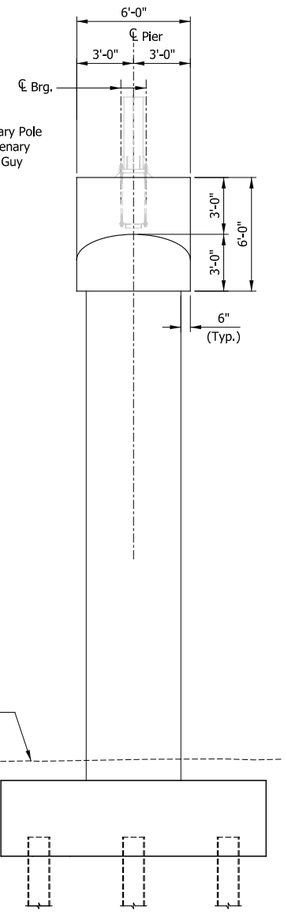
Scale: ¼" = 1'-0"

SOUTH END BENT



ELEVATION

Scale: ¼" = 1'-0"



END VIEW

Scale: ¼" = 1'-0"

PIER 1, 2, 3 & 7

GEOMETRY TABLE

LOCATION	Dim. A	Elev. B	Elev. C	Elev. D
Pier 1	23'-6"	630.27	606.77	540.00
Pier 2	24'-9"	631.62	606.87	540.00
Pier 3	25'-10"	632.75	606.92	540.00
Pier 7	29'-10"	634.89	605.06	540.00

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES ES201-04 OF ES201-06

PLOT DATE: November 08, 2017 6:07:03 PM JMIGUS

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NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

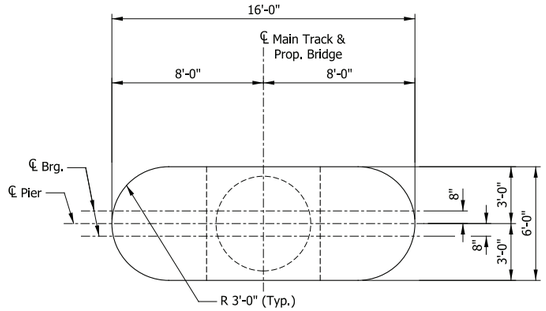
DYER TO HAMMOND, INDIANA

DESIGNED:	HDR-MCV
DRAWN:	HDR-JM
CHECKED:	HDR-JAL
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

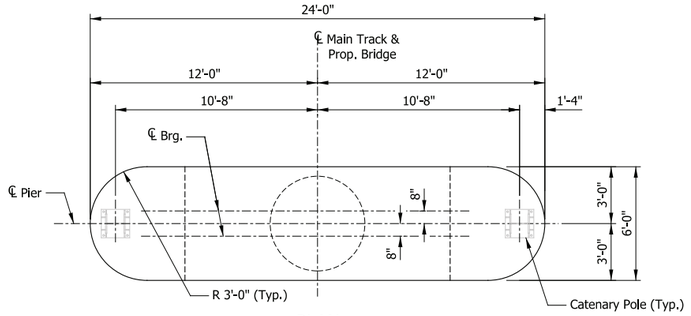
ELEVATED STRUCTURE 201
SUBSTRUCTURE DETAILS (1 OF 2)

FILENAME	SHT_WL_ST_ES201_SubstrDet_01.dgn	SHEET
SCALE	AS NOTED	41 OF 218



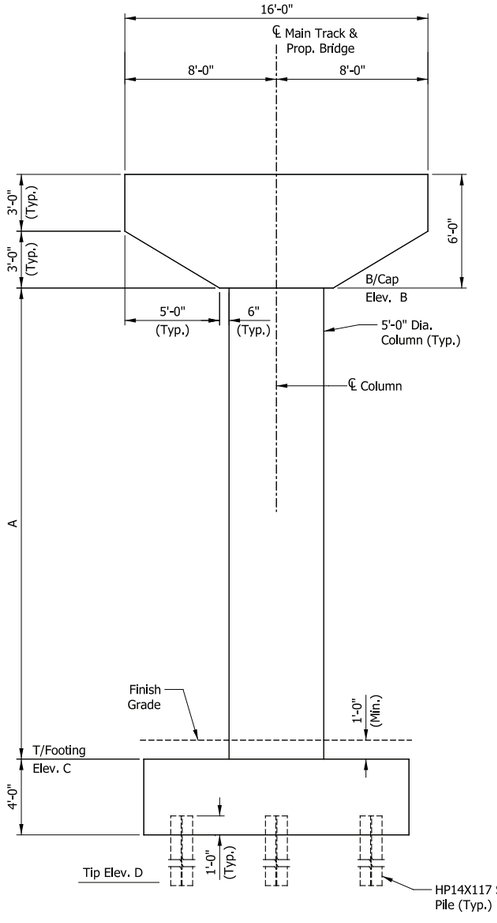
PLAN

Scale: ¼" = 1'-0"



PLAN

Scale: ¼" = 1'-0"



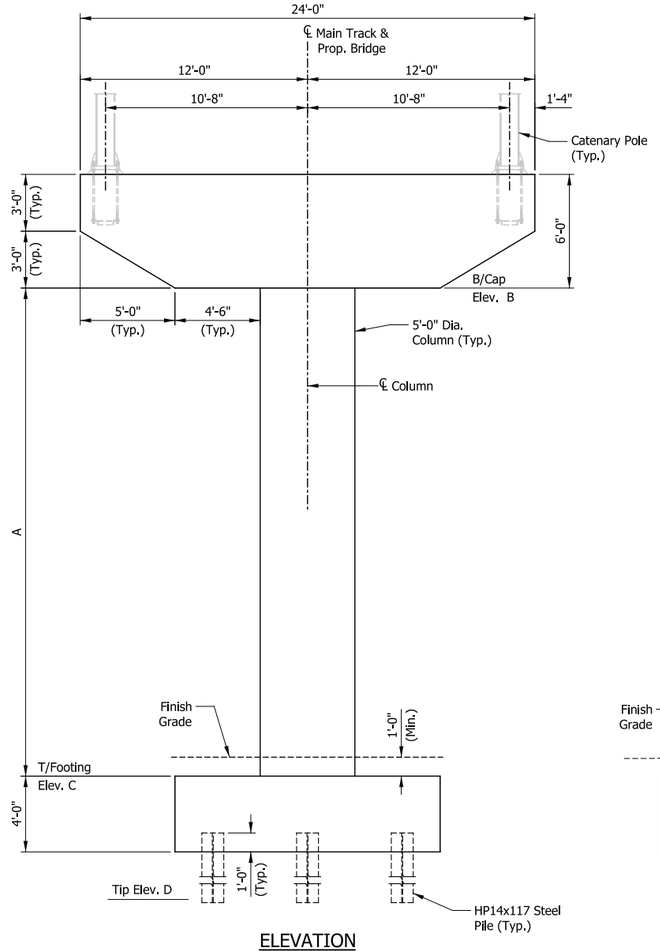
ELEVATION

Scale: ¼" = 1'-0"

PIER 4 & 6

END VIEW

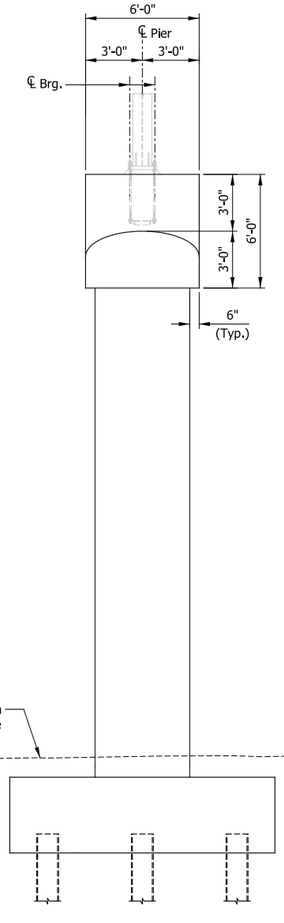
Scale: ¼" = 1'-0"



ELEVATION

Scale: ¼" = 1'-0"

PIER 5



END VIEW

Scale: ¼" = 1'-0"

GEOMETRY TABLE

LOCATION	Dim. A	Elev. B	Elev. C	Elev. D
Pier 4	26'-3"	633.64	607.39	540.00
Pier 5	28'-3"	634.29	606.04	540.00
Pier 6	29'-2"	634.71	605.54	540.00

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES ES201-05 OF ES201-06

PLOT DATE: November 08, 2017 6:07:11 PM JMIGUS

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33 East Highway 12
Chesterton, Indiana 46304

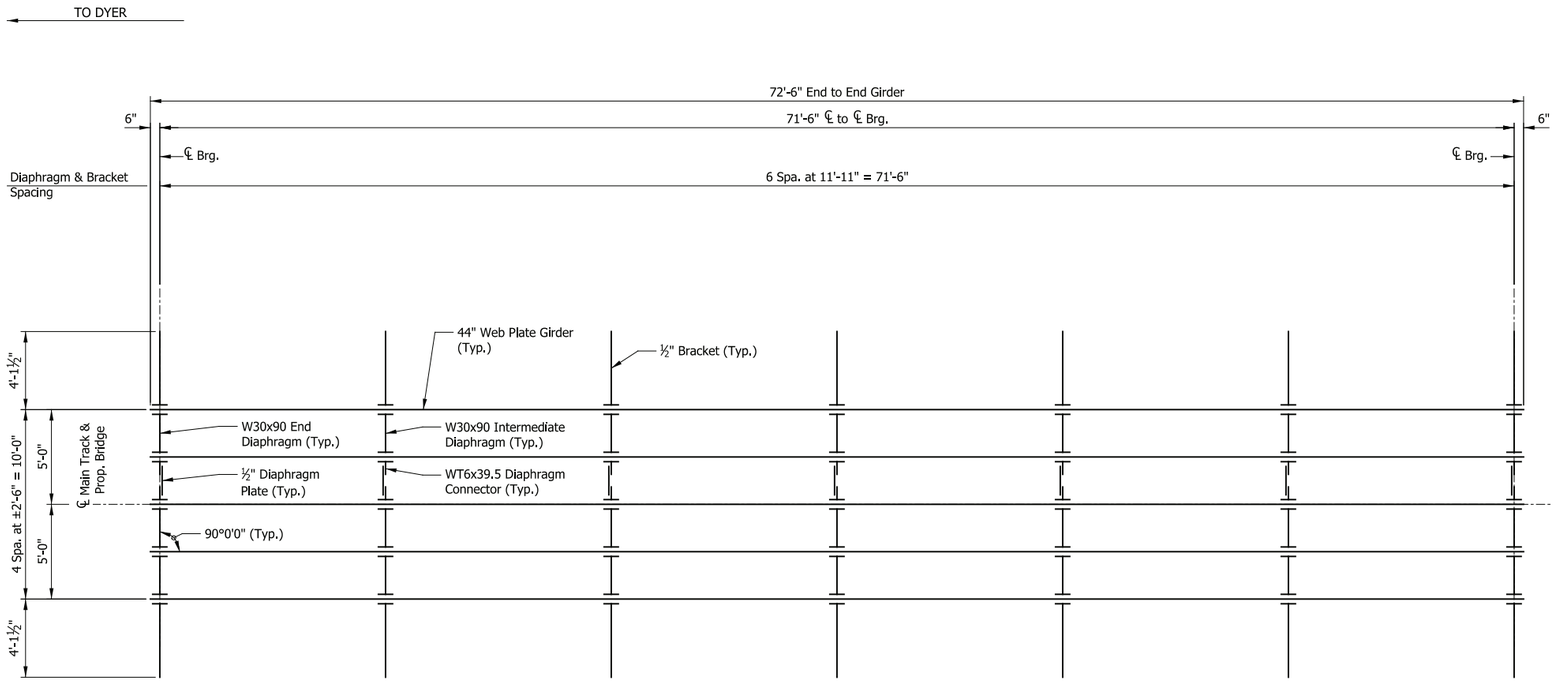
DYER TO HAMMOND, INDIANA

DESIGNED:	HDR-MCV
DRAWN:	HDR-JM
CHECKED:	HDR-JAL
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

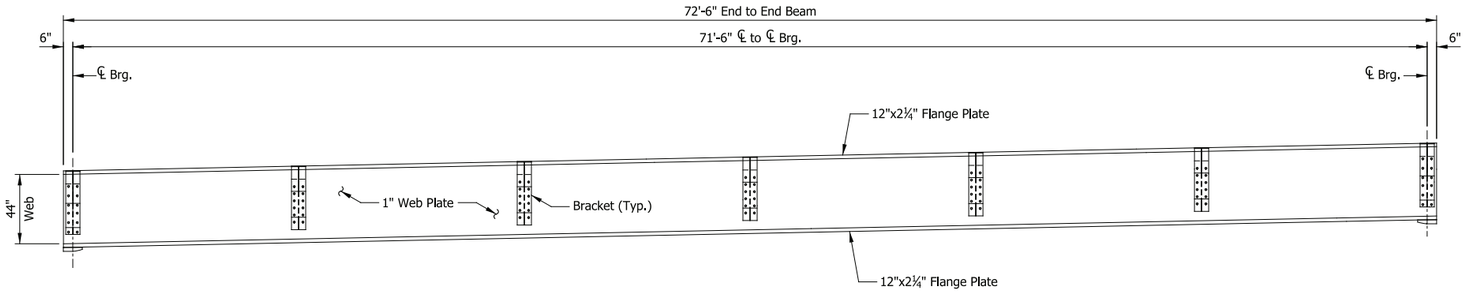
ELEVATED STRUCTURE 201
SUBSTRUCTURE DETAILS (2 OF 2)

FILENAME	SHT_WL_ST_ES201_SubstrDet_02.dgn	SHEET
SCALE	AS NOTED	42 OF 218



FRAMING PLAN

Spans 1 thru 8
Scale: ¼" = 1'-0"



GIRDER EXTERIOR ELEVATION

Spans 1 thru 8
Scale: ¼" = 1'-0"

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES ES201-06 OF ES201-06

PLOT DATE: November 08, 2017 6:07:15 PM JMIGUS

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NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

DYER TO HAMMOND, INDIANA

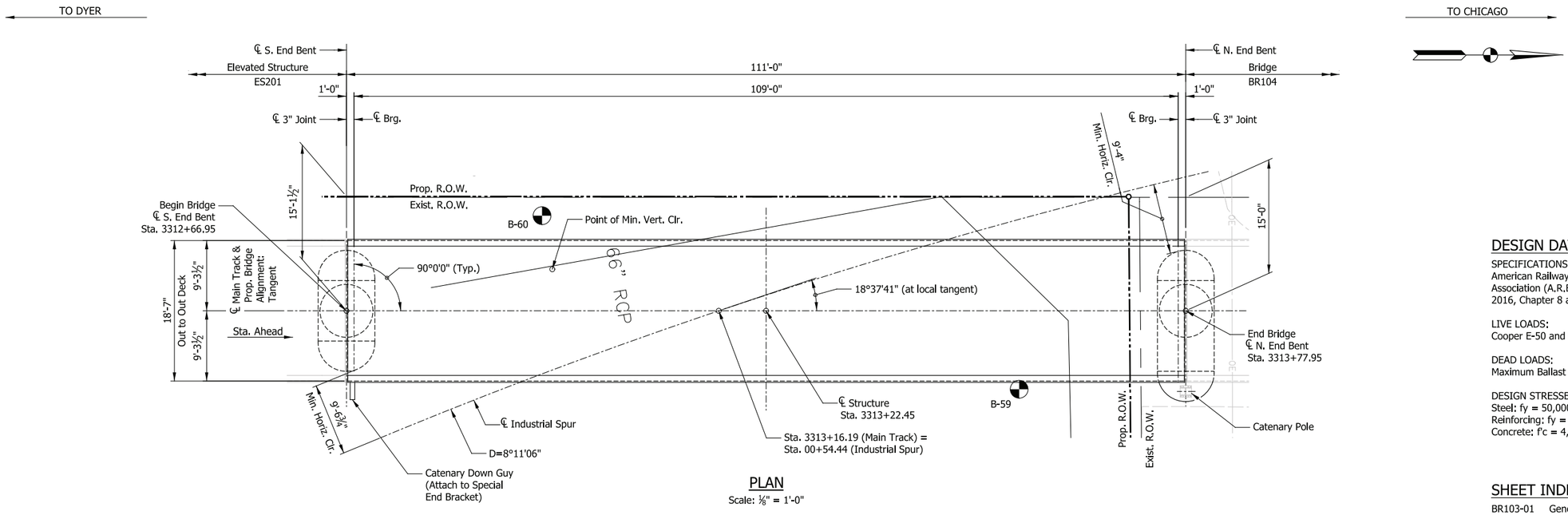
DESIGNED:	HDR-MAB
DRAWN:	HDR-JM
CHECKED:	HDR-JAL
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

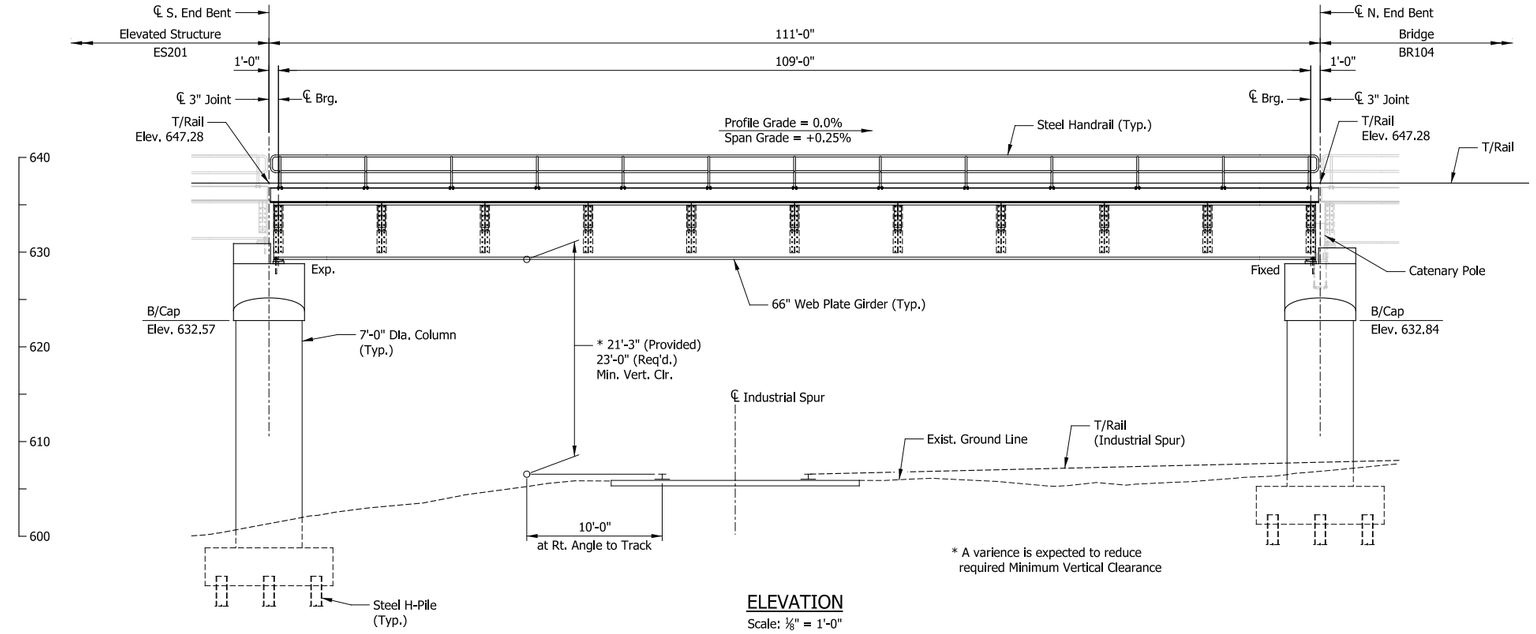
ELEVATED STRUCTURE 201
FRAMING PLAN

FILENAME	SHT_WL_ST_ES201_FramPlan_01.dgn
SCALE	AS NOTED

SHEET **43 OF 218**



PLAN
Scale: ⅛" = 1'-0"



ELEVATION
Scale: ⅛" = 1'-0"

DESIGN DATA

SPECIFICATIONS:
American Railway Engineering and Maintenance-of-Way Association (A.R.E.M.A.), Manual for Railway Engineering, 2016, Chapter 8 and 15.

LIVE LOADS:
Cooper E-50 and Ballast Train per Structural Design Criteria

DEAD LOADS:
Maximum Ballast Depth = 21 inches (at High End of Span)

DESIGN STRESSES:
Steel: fy = 50,000 psi (ASTM A709 Gr 50)
Reinforcing: fy = 60,000 psi (ASTM A615)
Concrete: f'c = 4,000 psi (Min.)

SHEET INDEX

CONSTRUCTION DEPTH

Rail (115 Lbs)	6⅞"
Tie Plate	¾"
Tie	7"
Ballast (min.)	8"
Waterproofing	1"
Deck Plate	⅝"
Top Flange	3"
Web	66"
Bottom Flange	3"
	96"

NOTES

1. For track geometry, see Track Plans.
2. Downspouts not shown but required at all bents on side adjacent to low end of span.

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES BR103-01 OF BR103-04

PLOT DATE: November 08, 2017 6:07:40 PM JMIGUS

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ISSUE	DATE	DESCRIPTION

NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

WEST LAKE CORRIDOR
DYER TO HAMMOND, INDIANA

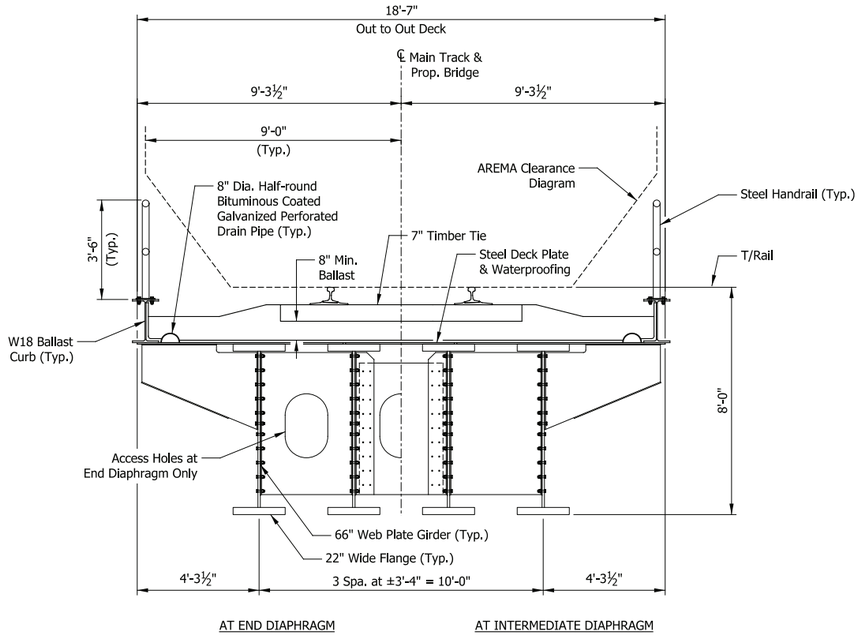
DESIGNED:	HDR-EJW
DRAWN:	HDR-JM
CHECKED:	HDR-JAL
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

BRIDGE 103 - NICTD OVER INDUSTRIAL SPUR GENERAL PLAN & ELEVATION

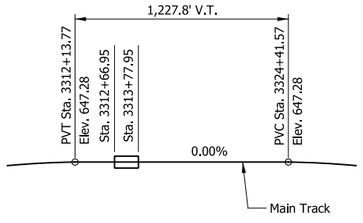
FILENAME	SHT_WL_ST_BR103_GenPlan_01.dgn
SCALE	AS NOTED

SHEET **44 OF 218**



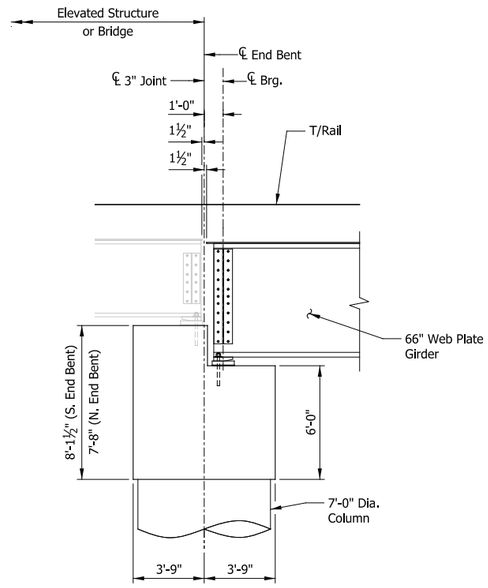
TYPICAL SECTION

Scale: ⅜" = 1'-0"



TOP OF RAIL PROFILE

Not to Scale



SECTION THRU END BENT

Scale: ¼" = 1'-0"

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES BR103-02 OF BR103-04

PLOT DATE: November 08, 2017 6:07:45 PM JMIGUS

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ISSUE	DATE	DESCRIPTION
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NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

DYER TO HAMMOND, INDIANA

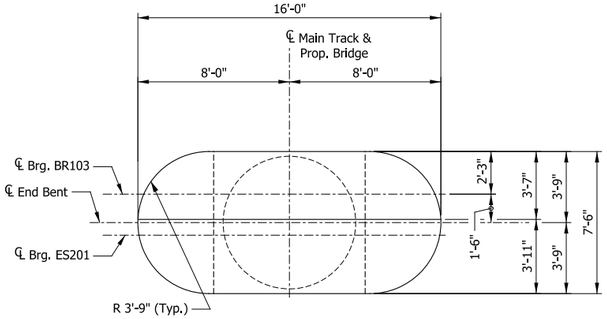
DESIGNED:	HDR-EJW
DRAWN:	HDR-JM
CHECKED:	HDR-JAL
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

BRIDGE 103 - NICTD OVER INDUSTRIAL SPUR TYPICAL DETAILS

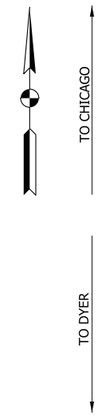
FILENAME	SHT_WL_ST_BR103_TypDet_01.dgn
SCALE	AS NOTED

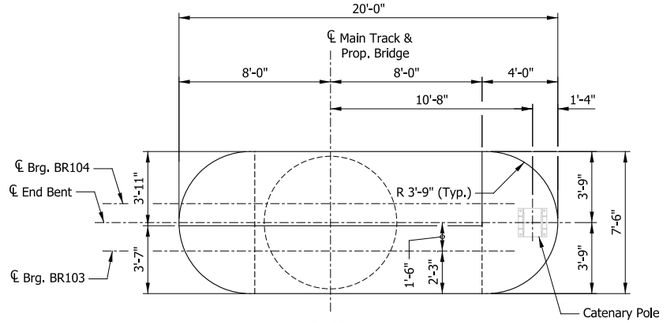
SHEET **45 OF 218**



PLAN

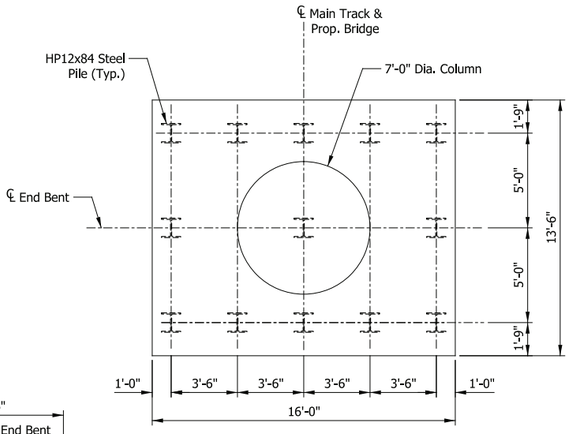
Scale: ¼" = 1'-0"





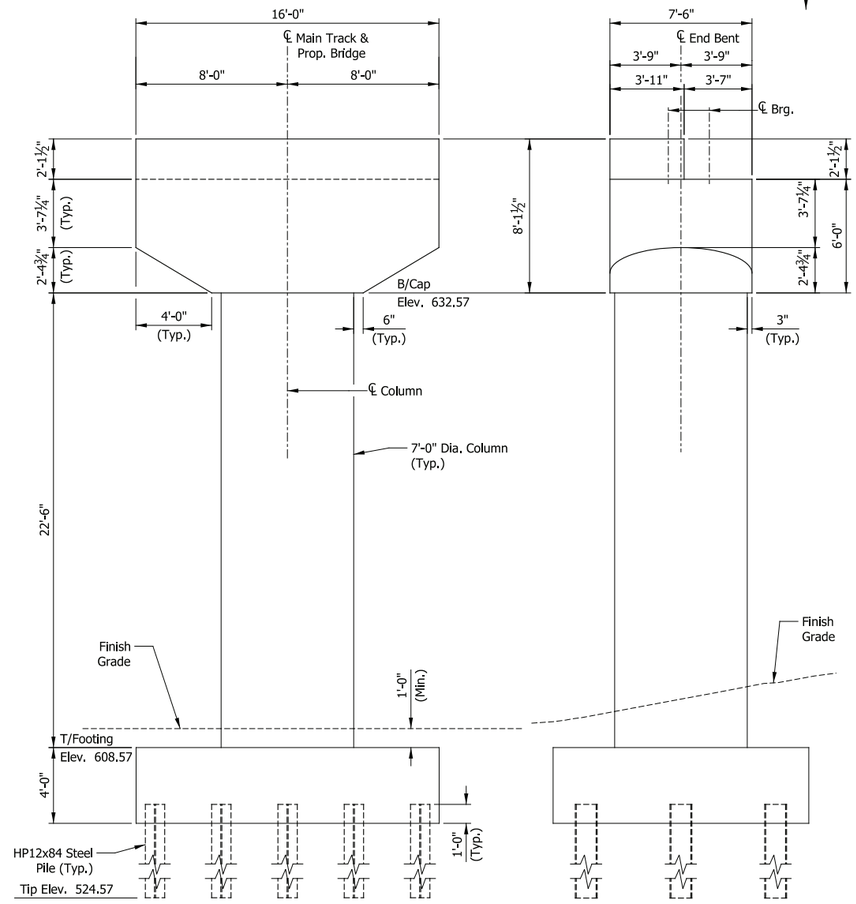
PLAN

Scale: ¼" = 1'-0"



FOOTING PLAN (TYP.)

Scale: ¼" = 1'-0"



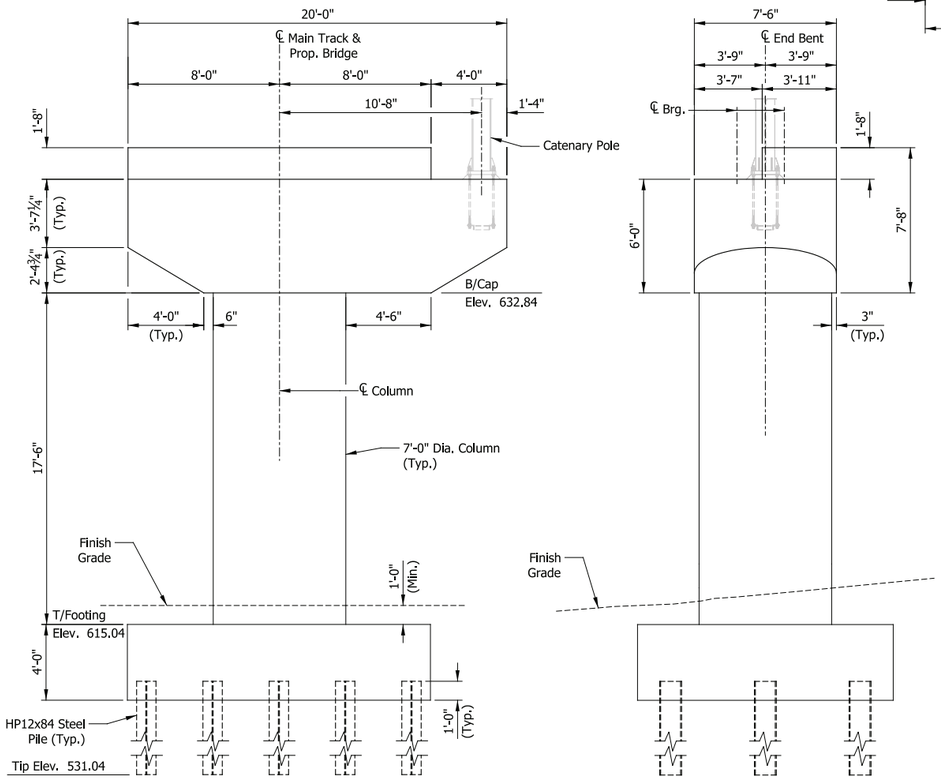
ELEVATION

Scale: ¼" = 1'-0"

SOUTH END BENT

END VIEW

Scale: ¼" = 1'-0"



ELEVATION

Scale: ¼" = 1'-0"

NORTH END BENT

END VIEW

Scale: ¼" = 1'-0"

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES BR103-03 OF BR103-04

PLOT DATE: November 08, 2017 6:07:50 PM JMTGUS

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ISSUE	DATE	DESCRIPTION

NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

DYER TO HAMMOND, INDIANA

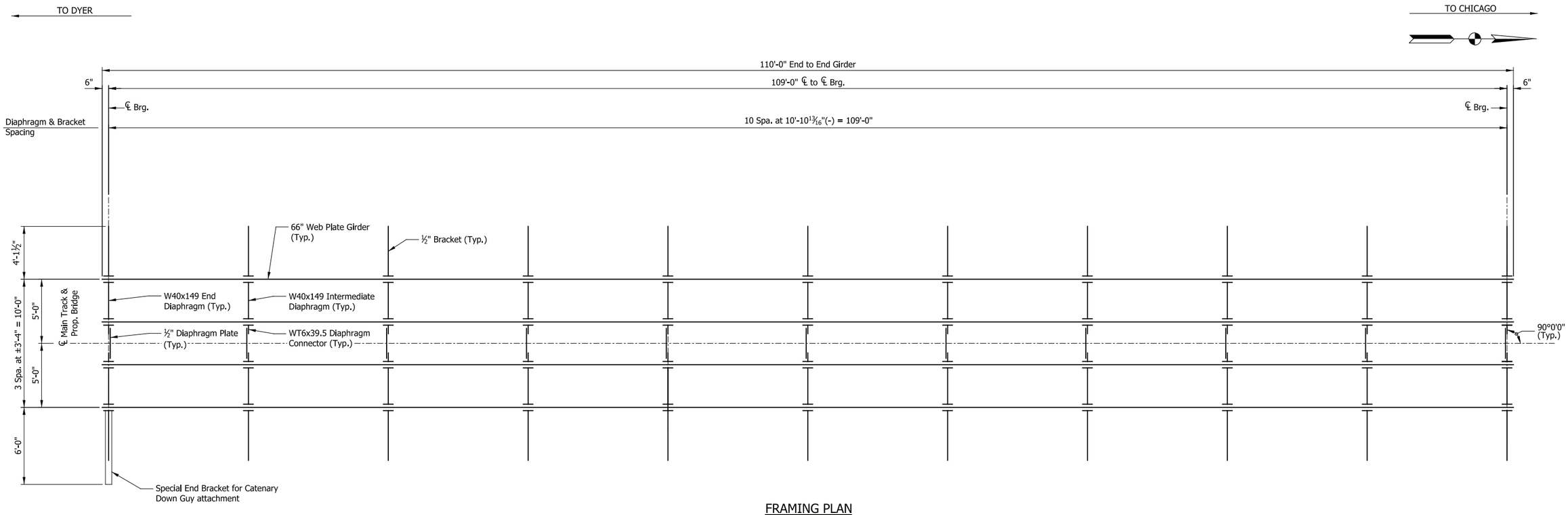
DESIGNED:	HDR-KK
DRAWN:	HDR-JM
CHECKED:	HDR-JAL
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

BRIDGE 103 - NICTD OVER INDUSTRIAL SPUR SUBSTRUCTURE DETAILS

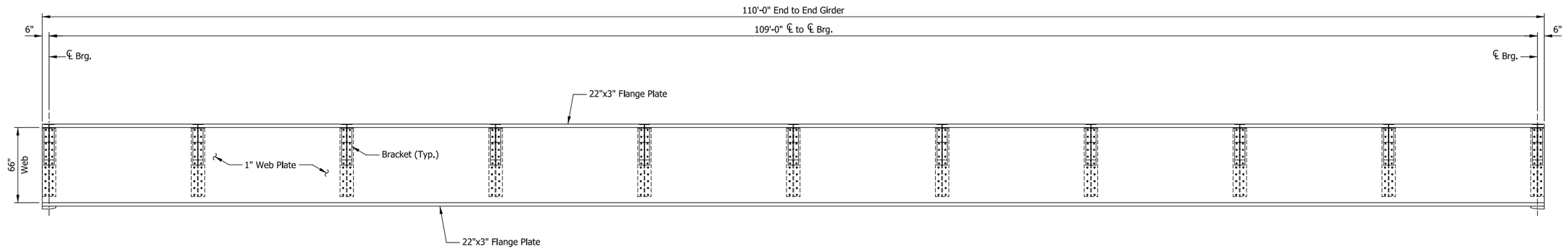
FILENAME	SHT_WL_ST_BR103_SubstrDet_01.dgn
SCALE	AS NOTED

SHEET **46 OF 218**



FRAMING PLAN

Scale: ¼" = 1'-0"



GIRDER EXTERIOR ELEVATION

Scale: ¼" = 1'-0"

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES BR103-04 OF BR103-04

PLOT DATE: November 08, 2017 6:07:54 PM JMIGUS

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Chicago, IL 60631
www.hdrinc.com

ISSUE	DATE	DESCRIPTION
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NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

WEST LAKE CORRIDOR
DYER TO HAMMOND, INDIANA

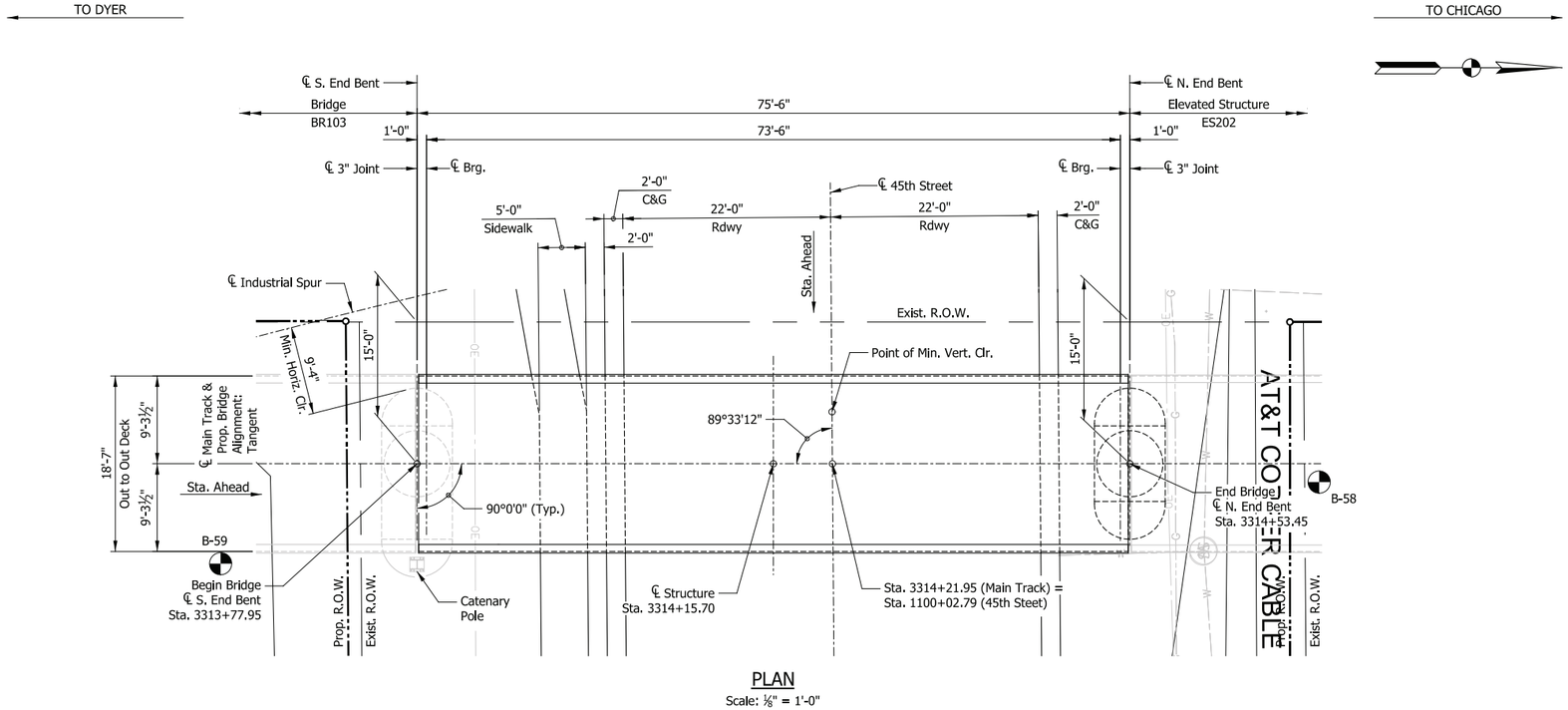
DESIGNED:	HDR-EJW
DRAWN:	HDR-JM
CHECKED:	HDR-JAL
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

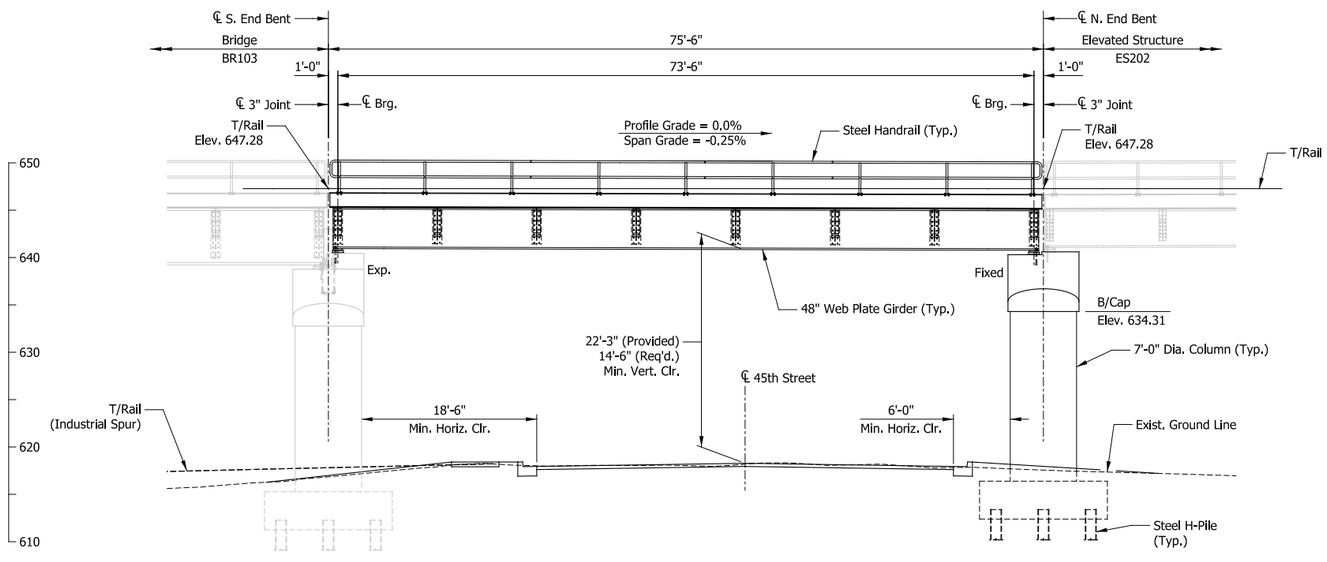
BRIDGE 103 - NICTD OVER INDUSTRIAL SPUR FRAMING PLAN

FILENAME	SHT_WL_ST_BR103_FramPlan_01.dgn
SCALE	AS NOTED

SHEET **47 OF 218**



PLAN
Scale: ⅛" = 1'-0"



ELEVATION
Scale: ⅛" = 1'-0"

DESIGN DATA

SPECIFICATIONS:
American Railway Engineering and Maintenance-of-Way Association (A.R.E.M.A.), Manual for Railway Engineering, 2016, Chapter 8 and 15.

LIVE LOADS:
Cooper E-50 and Ballast Train per Structural Design Criteria

DEAD LOADS:
Maximum Ballast Depth = 21 inches (at High End of Span)

DESIGN STRESSES:
Steel: fy = 50,000 psi (ASTM A709 Gr 50)
Reinforcing: fy = 60,000 psi (ASTM A615)
Concrete: f'c = 4,000 psi (Min.)

SHEET INDEX

CONSTRUCTION DEPTH

Rail (115 Lbs)	6⅝"
Tie Plate	¾"
Tie	7"
Ballast (min.)	8"
Waterproofing	1"
Deck Plate	⅝"
Top Flange	2"
Web	48"
Bottom Flange	2"
	76"

NOTES

1. For track geometry, see Track Plans.
2. Downspouts not shown but required at North End Bent on side adjacent to low end of span.

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES BR104-01 OF BR104-04

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NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

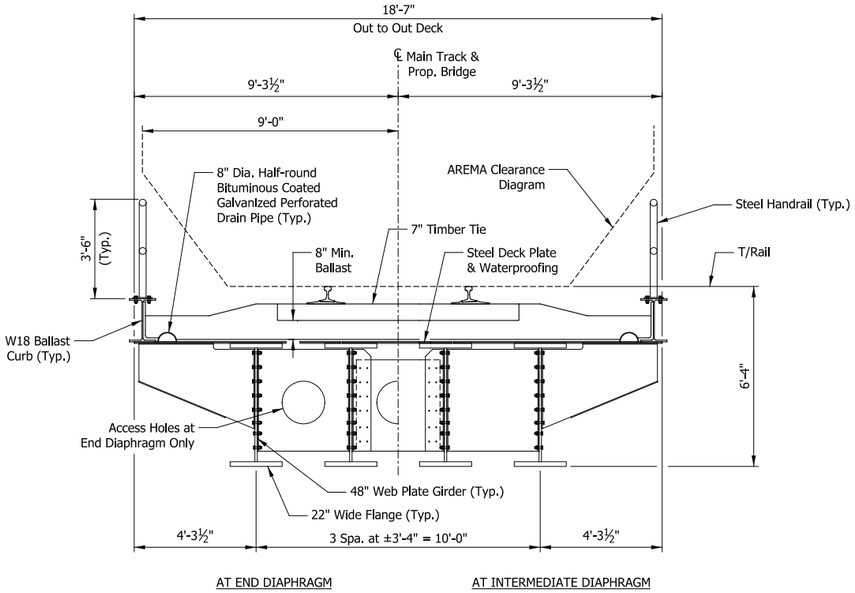
DYER TO HAMMOND, INDIANA

DESIGNED:	HDR-EJW
DRAWN:	HDR-JM
CHECKED:	HDR-JAL
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

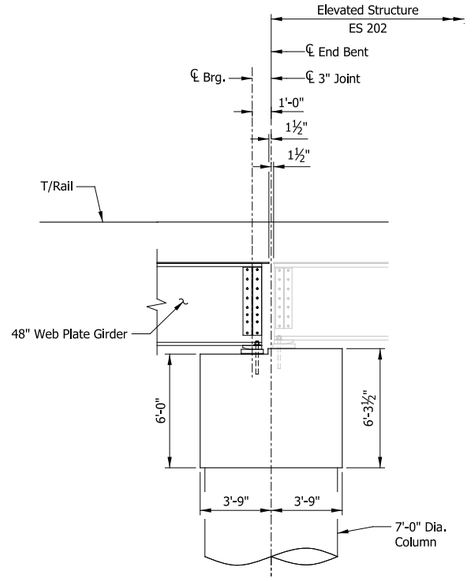
BRIDGE 104 - NICTD OVER 45TH STREET
GENERAL PLAN & ELEVATION

FILENAME	SHT_WL_ST_BR104_GenPlan_01.dgn	SHEET
SCALE	AS NOTED	48 OF 218



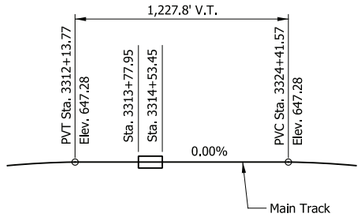
TYPICAL SECTION

Scale: ⅜" = 1'-0"



SECTION THRU N. END BENT

Scale: ¼" = 1'-0"



TOP OF RAIL PROFILE

Not to Scale

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES BR104-02 OF BR104-04

PLOT DATE: November 08, 2017 6:08:09 PM JMIGUS

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NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

DYER TO HAMMOND, INDIANA

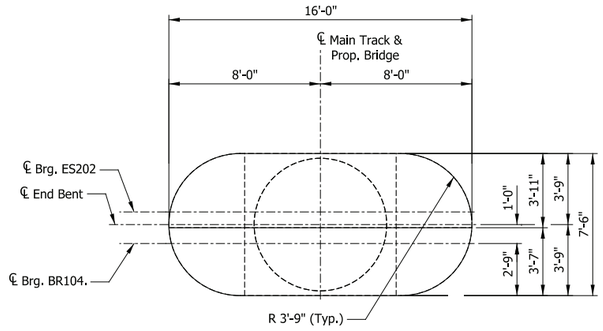
DESIGNED:	HDR-EJW
DRAWN:	HDR-JM
CHECKED:	HDR-JAL
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

BRIDGE 104 - NICTD OVER 45TH STREET
TYPICAL DETAILS

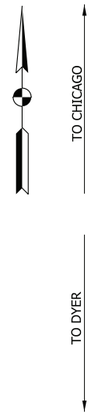
FILENAME	SHT_WL_ST_BR104_TypDet_01.dgn
SCALE	AS NOTED

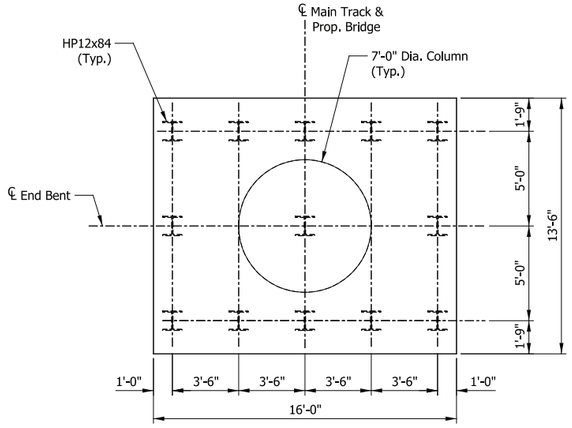
SHEET **49 OF 218**



PLAN

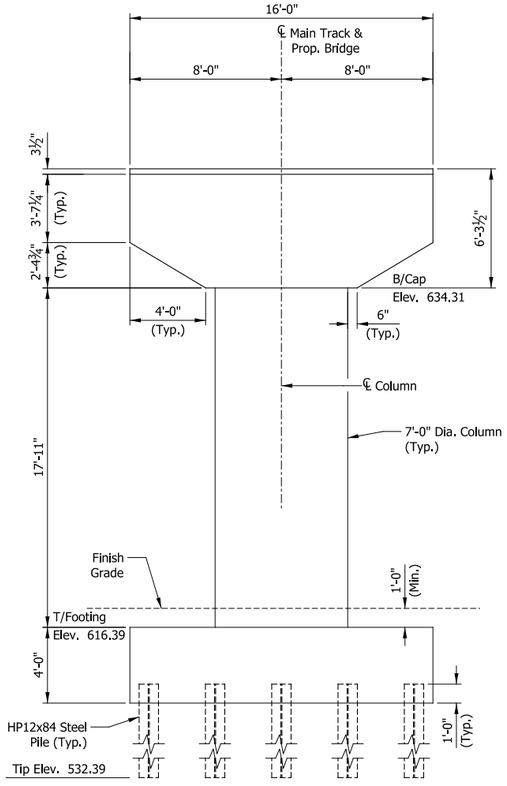
Scale: ¼" = 1'-0"





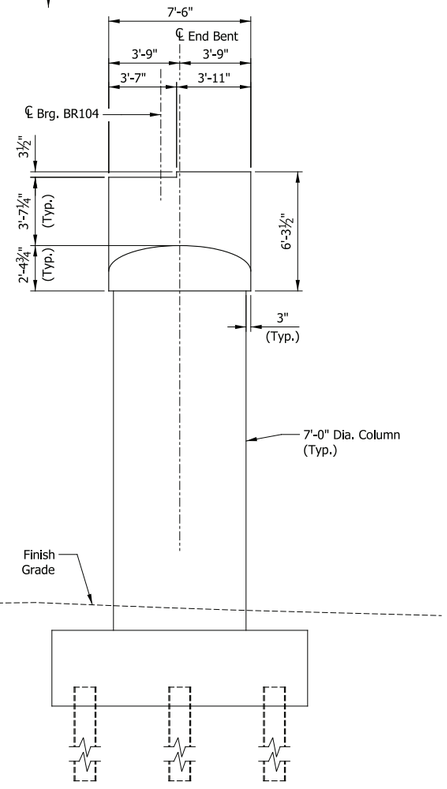
FOOTING PLAN

Scale: ¼" = 1'-0"



ELEVATION

Scale: ¼" = 1'-0"



END VIEW

Scale: ¼" = 1'-0"

NORTH END BENT

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES BR104-03 OF BR104-04

PLOT DATE: November 08, 2017 6:08:13 PM JMIGUS

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NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

DYER TO HAMMOND, INDIANA

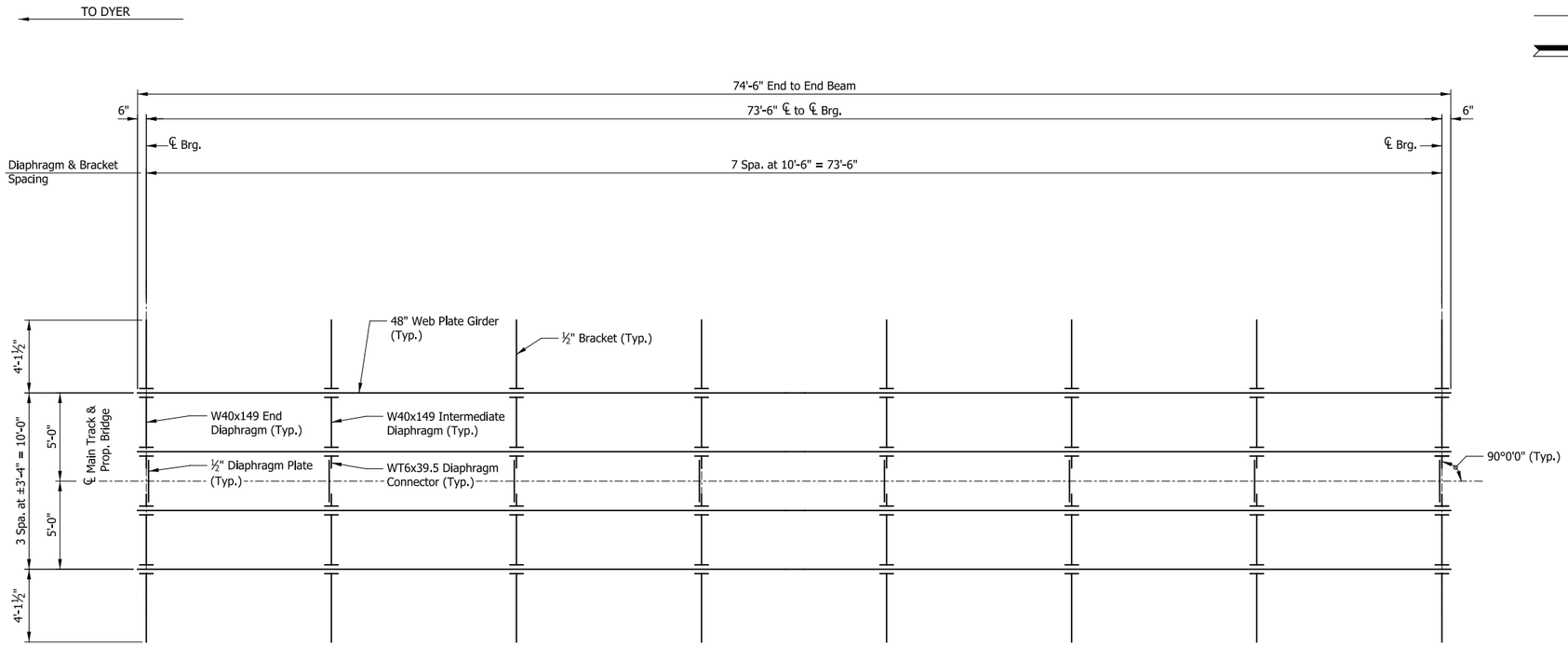
DESIGNED:	HDR-KK
DRAWN:	HDR-JM
CHECKED:	HDR-JAL
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

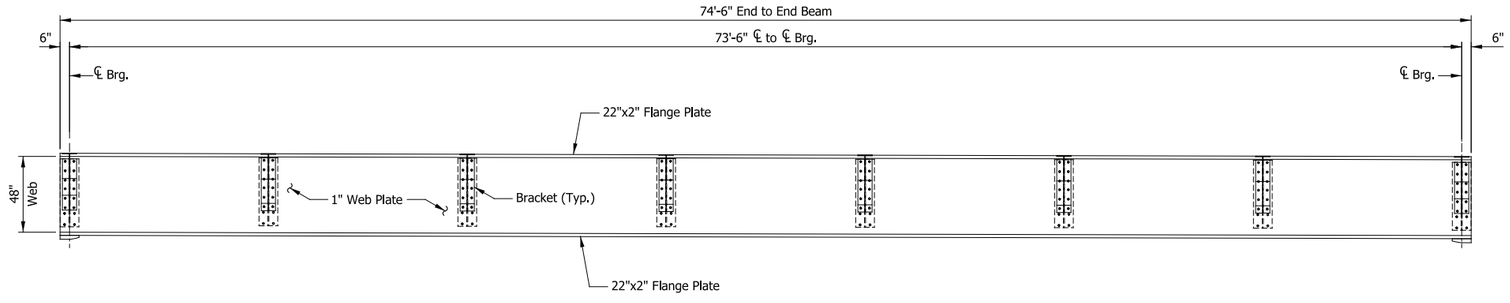
BRIDGE 104 - NICTD OVER 45TH STREET
SUBSTRUCTURE DETAILS

FILENAME	SHT_WL_ST_BR104_SubstrDet_01.dgn
SCALE	AS NOTED

SHEET **50 OF 218**



FRAMING PLAN
Scale: ¼" = 1'-0"



GIRDER EXTERIOR ELEVATION
Scale: ¼" = 1'-0"

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES BR104-04 OF BR104-04

PLOT DATE: November 08, 2017 6:08:18 PM JMIGUS

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33 East Highway 12
Chesterton, Indiana 46304

DYER TO HAMMOND, INDIANA

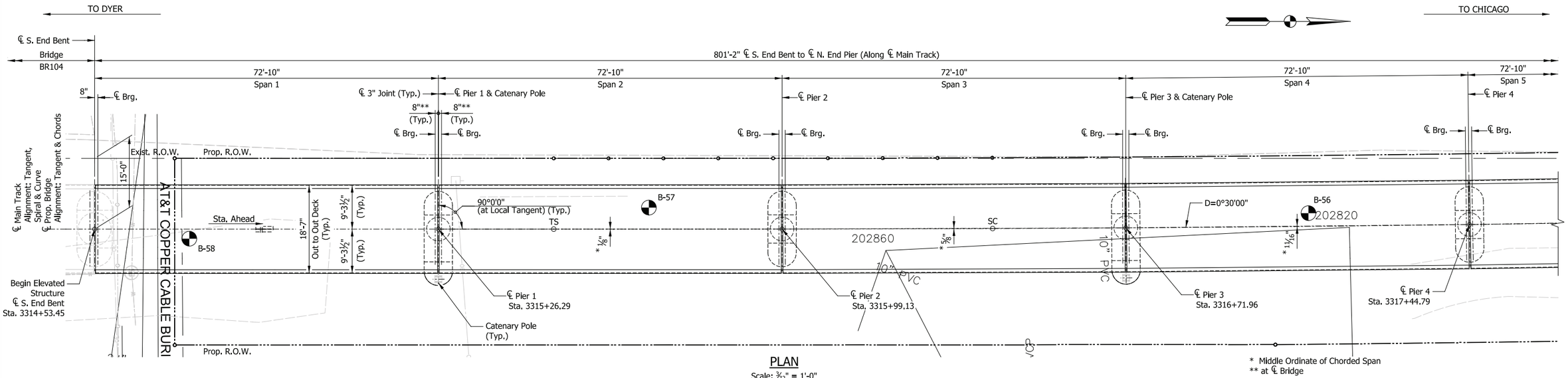
DESIGNED:	HDR-EJW
DRAWN:	HDR-JM
CHECKED:	HDR-JAL
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

BRIDGE 104 - NICTD OVER 45TH STREET
FRAMING PLAN

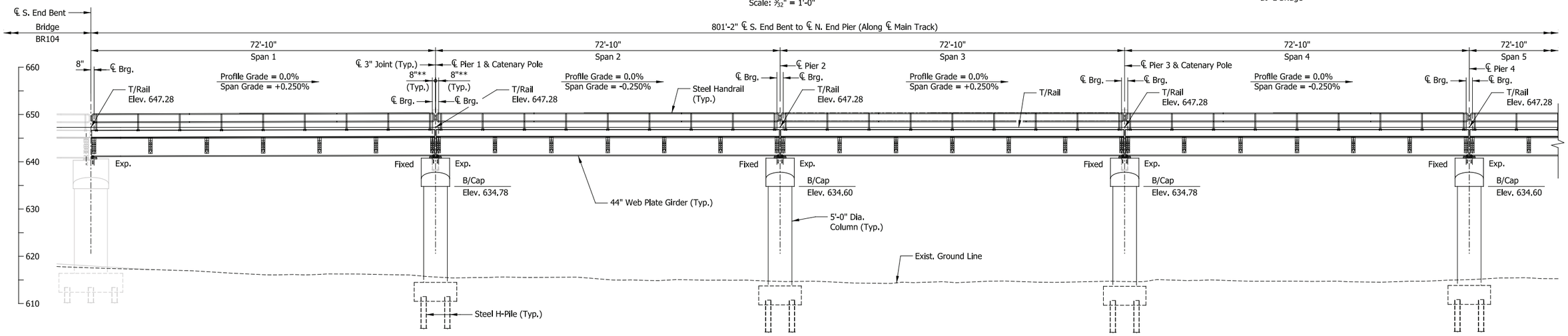
FILENAME	SHT_WL_ST_BR104_FramPlan_01.dgn
SCALE	AS NOTED

SHEET **51 OF 218**



PLAN

Scale: 3/32" = 1'-0"



ELEVATION

Scale: 3/32" = 1'-0"

DESIGN DATA

SPECIFICATIONS:
American Railway Engineering and Maintenance-of-Way Association (A.R.E.M.A.), Manual for Railway Engineering, 2016, Chapter 8 and 15.

LIVE LOADS:
Cooper E-50 and Ballast Train per Structural Design Criteria

DEAD LOADS:
Maximum Ballast Depth = 21 inches (at High End of Span)

DESIGN STRESSES:
Steel: fy = 50,000 psi (ASTM A709 Gr 50)
Reinforcing: fy = 60,000 psi (ASTM A615)
Concrete: f'c = 4,000 psi (Min.)

CONSTRUCTION DEPTH

Rail (115 RE)	6⅝"
Tie Plate	¾"
Tie	7"
Ballast (min.)	8"
Waterproofing	1"
Deck Plate	⅝"
Top Flange	2¼"
Web	44"
Bottom Flange	2¼"
	72½"

SHEET INDEX

NOTES

1. For track geometry, see Track Plans.
2. Downspouts not shown but required at all piers on side adjacent to low end of span.
3. All ℄ Piers = ℄ Track

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES ES202-01 OF ES202-06

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NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

WEST LAKE CORRIDOR
DYER TO HAMMOND, INDIANA

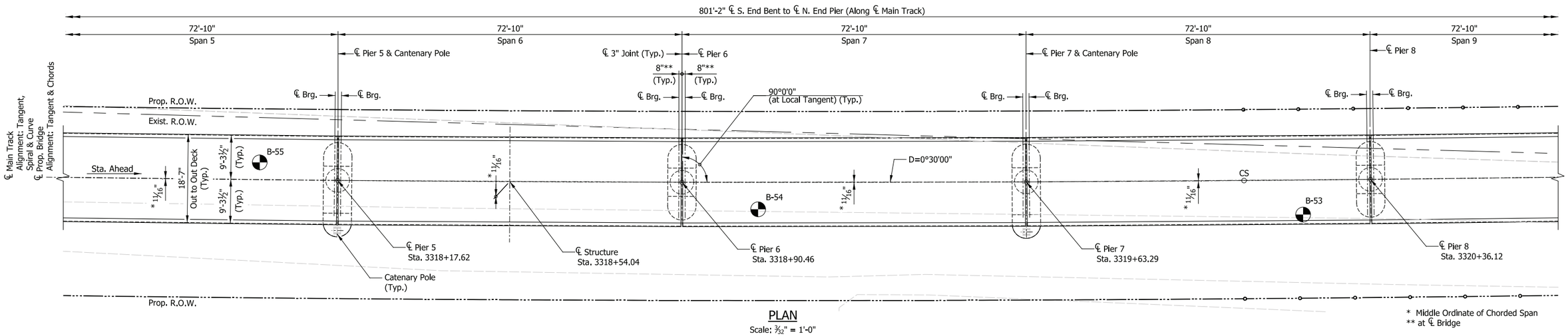
DESIGNED:	HDR-MAB
DRAWN:	HDR-JM
CHECKED:	HDR-JAL
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

ELEVATED STRUCTURE 202
GENERAL PLAN & ELEVATION (1 OF 3)

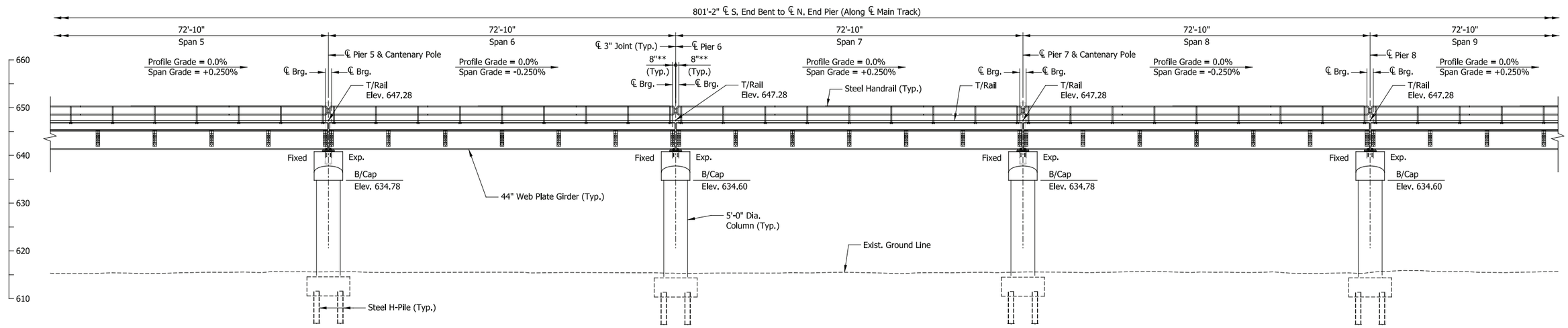
FILENAME	SHT_WL_ST_ES202_GenPlan_01.dgn
SCALE	AS NOTED

SHEET **52 OF 218**



PLAN

Scale: 3/32" = 1'-0"



ELEVATION

Scale: 3/32" = 1'-0"

NOTES

1. For track geometry, see Track Plans.
2. Downspouts not shown but required at all piers on side adjacent to low end of span.
3. All ℄ Piers = ℄ Track

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES ES202-02 OF ES202-06

PLOT DATE: November 08, 2017 6:08:44 PM JMIGUS

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33 East Highway 12
Chesterton, Indiana 46304

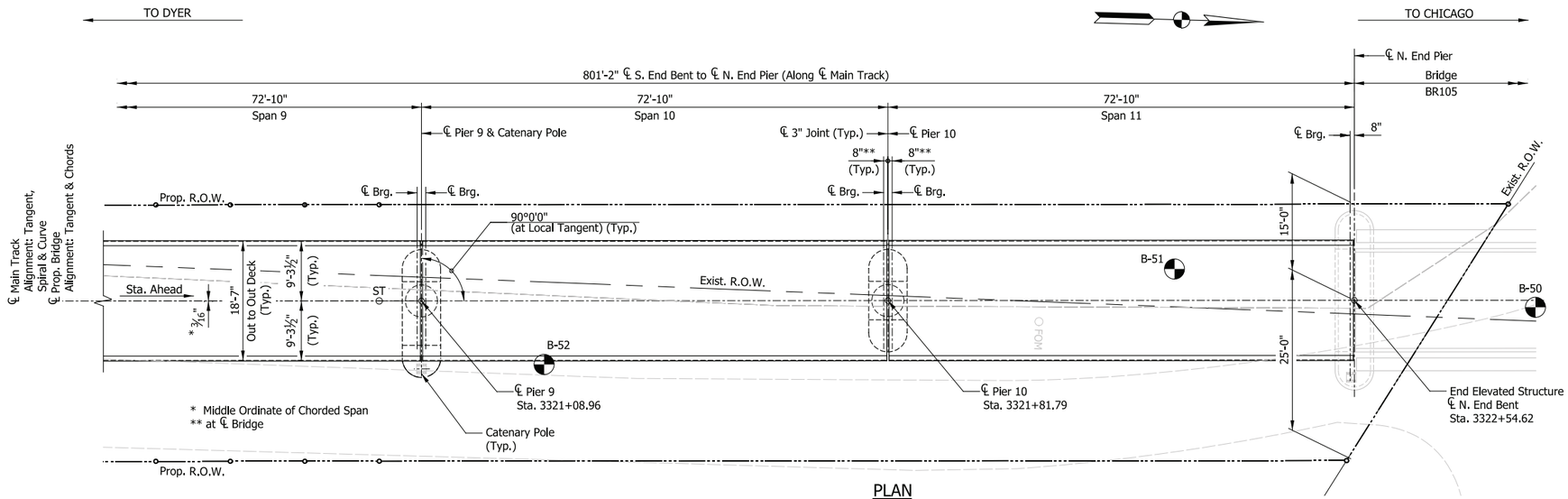
DYER TO HAMMOND, INDIANA

DESIGNED:	HDR-MAB
DRAWN:	HDR-JM
CHECKED:	HDR-JAL
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

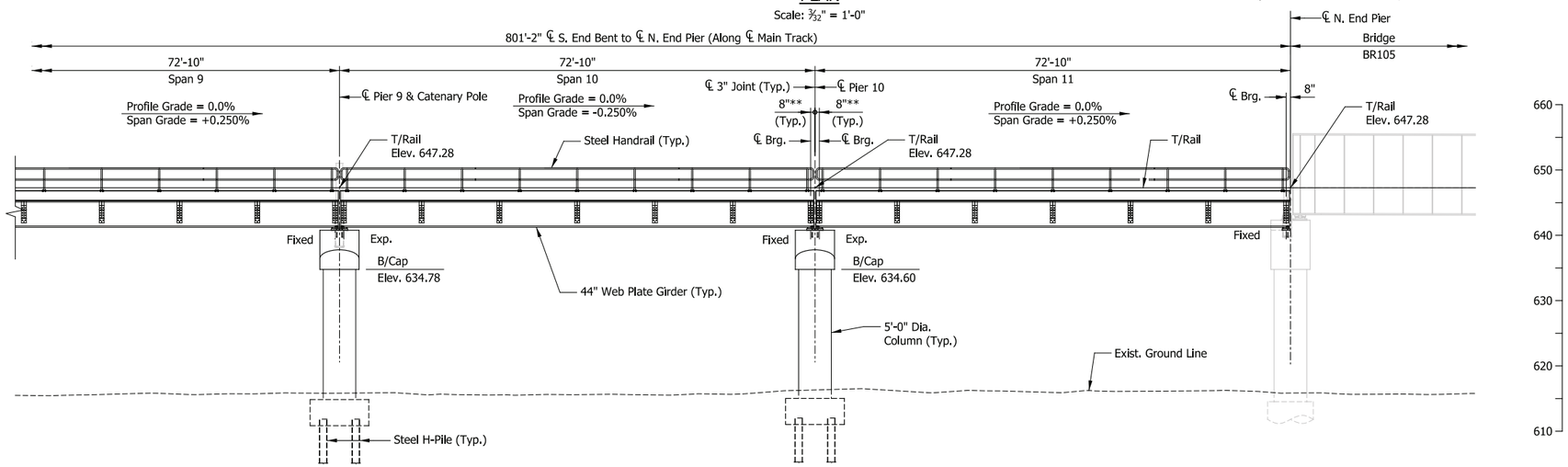
ELEVATED STRUCTURE 202
GENERAL PLAN & ELEVATION (2 OF 3)

FILENAME	SHT_WL_ST_ES202_GenPlan_02.dgn	SHEET
SCALE	AS NOTED	**53 OF 218**



PLAN

Scale: 3/32" = 1'-0"



ELEVATION

Scale: 3/32" = 1'-0"

NOTES

1. For track geometry, see Track Plans.
2. Downspouts not shown but required at all piers on side adjacent to low end of span.
3. All ℄ Piers = ℄ Track

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES ES202-03 OF ES202-06

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33 East Highway 12
Chesterton, Indiana 46304

DYER TO HAMMOND, INDIANA

DESIGNED:	HDR-MAB
DRAWN:	HDR-JM
CHECKED:	HDR-JAL
DATE:	07/21/17

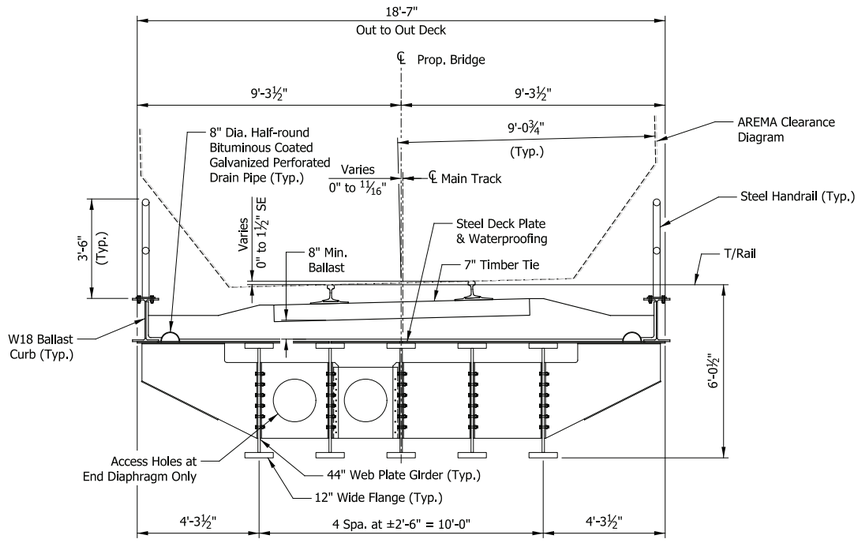
NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

ELEVATED STRUCTURE 202

GENERAL PLAN & ELEVATION (3 OF 3)

FILENAME	SHT_WL_ST_ES202_GenPlan_03.dgn
SCALE	AS NOTED

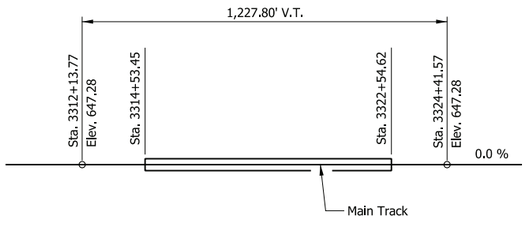
SHEET **54 OF 218**



AT END DIAPHRAGM AT INTERMEDIATE DIAPHRAGM

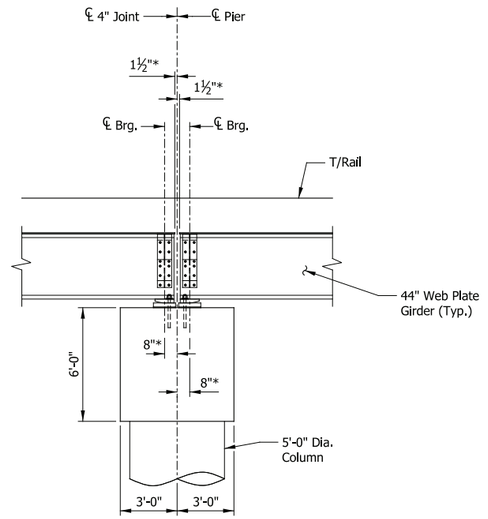
TYPICAL SECTION

Scale: ⅜" = 1'-0"



TOP OF RAIL PROFILE

Not to Scale



SECTION THRU PIER

Scale: ¼" = 1'-0"
* at ℄ Bridge

PLOT DATE: November 08, 2017 6:09:04 PM JMIGUS

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES ES202-04 OF ES202-06

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NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

DYER TO HAMMOND, INDIANA

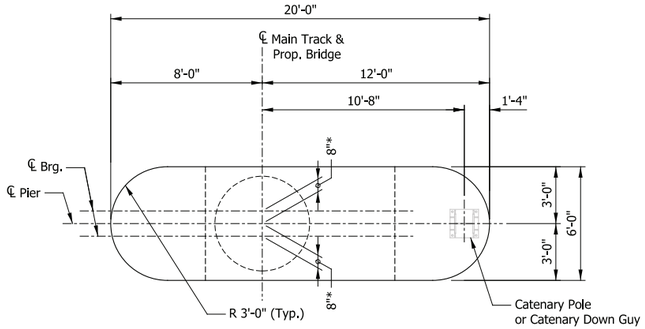
DESIGNED:	HDR-MAB
DRAWN:	HDR-JM
CHECKED:	HDR-JAL
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

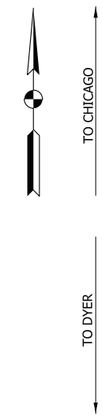
ELEVATED STRUCTURE 202
TYPICAL DETAILS

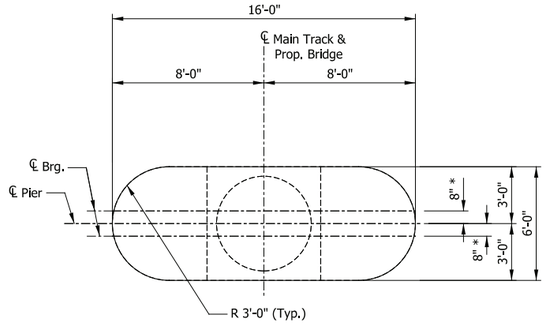
FILENAME	SHT_WL_ST_ES202_TypDet_01.dgn
SCALE	AS NOTED

SHEET **55 OF 218**

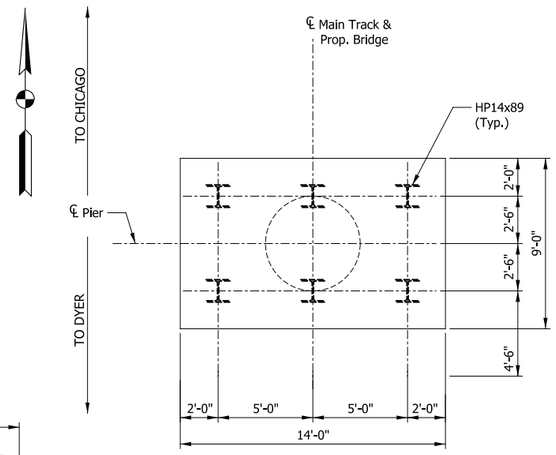


PLAN
Scale: ¼" = 1'-0"

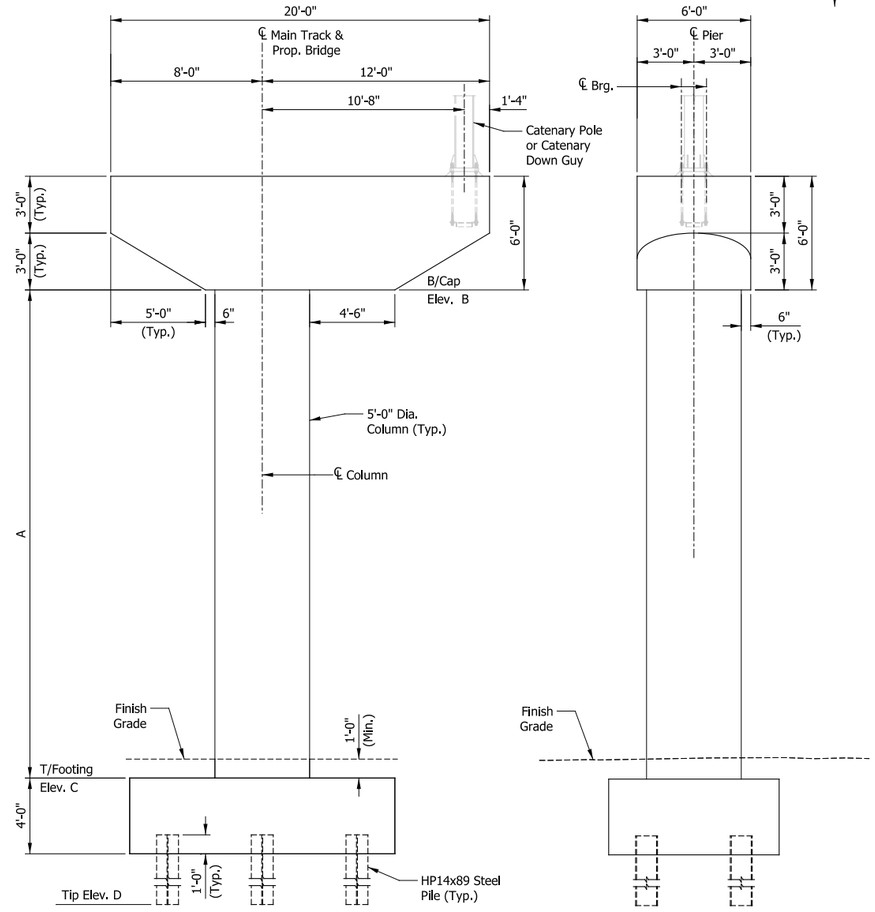




PLAN
Scale: ¼" = 1'-0"



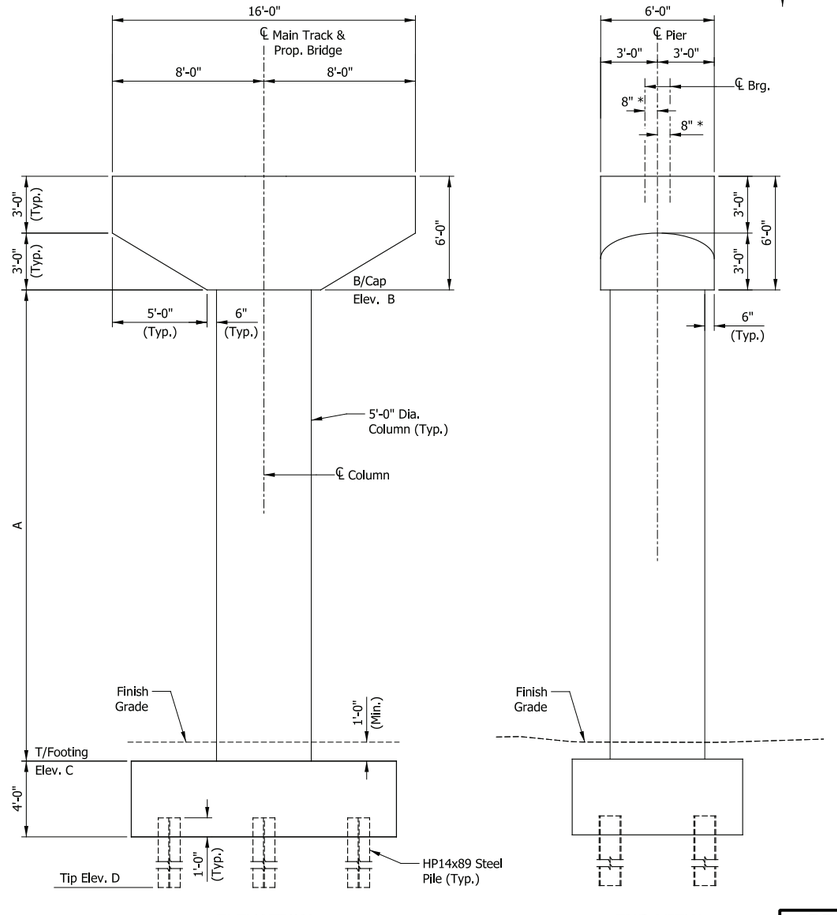
FOOTING PLAN (TYP.)
Scale: ¼" = 1'-0"



ELEVATION
Scale: ¼" = 1'-0"

END VIEW
Scale: ¼" = 1'-0"

PIER 1, 3, 5, 7 & 9



ELEVATION
Scale: ¼" = 1'-0"

END VIEW
Scale: ¼" = 1'-0"

PIER 2, 4, 6 & 8

GEOMETRY TABLE

LOCATION	Dim. A	Elev. B	Elev. C	Elev. D
Pier 1	20'-6"	634.78	614.28	572.28
Pier 2	21'-3"	634.60	613.35	571.35
Pier 3	21'-3"	634.78	613.53	571.53
Pier 4	20'-9"	634.60	613.85	571.85
Pier 5	20'-3"	634.78	614.53	572.53
Pier 6	20'-6"	634.60	614.10	572.10
Pier 7	20'-6"	634.78	614.28	572.28
Pier 8	20'-6"	634.60	614.10	572.10
Pier 9	20'-0"	634.78	614.78	572.78
Pier 10	20'-0"	634.60	614.60	572.60

* At Piers 3 through 8, Bearing Line offsets vary and dimensions shown are measured at ℄ Pier

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES ES202-05 OF ES202-06

PLOT DATE: November 08, 2017 6:09:18 PM JMIGUS

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ISSUE	DATE	DESCRIPTION
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NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

DYER TO HAMMOND, INDIANA

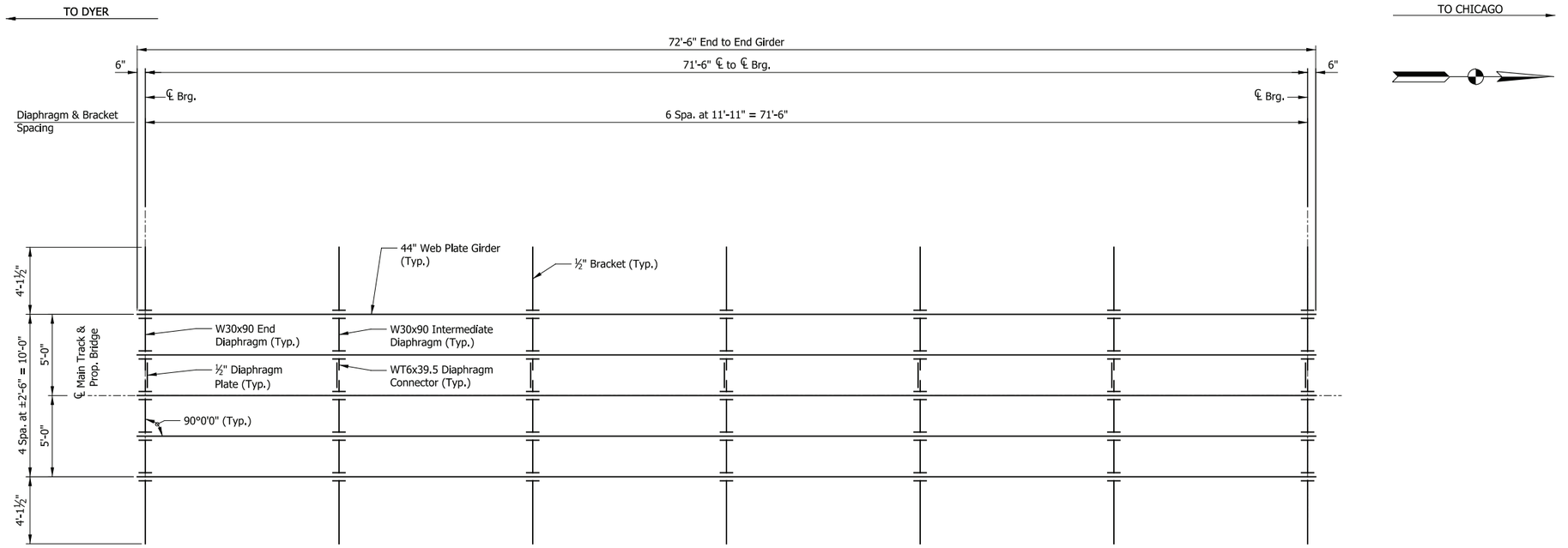
DESIGNED:	HDR-MCV
DRAWN:	HDR-JM
CHECKED:	HDR-JAL
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

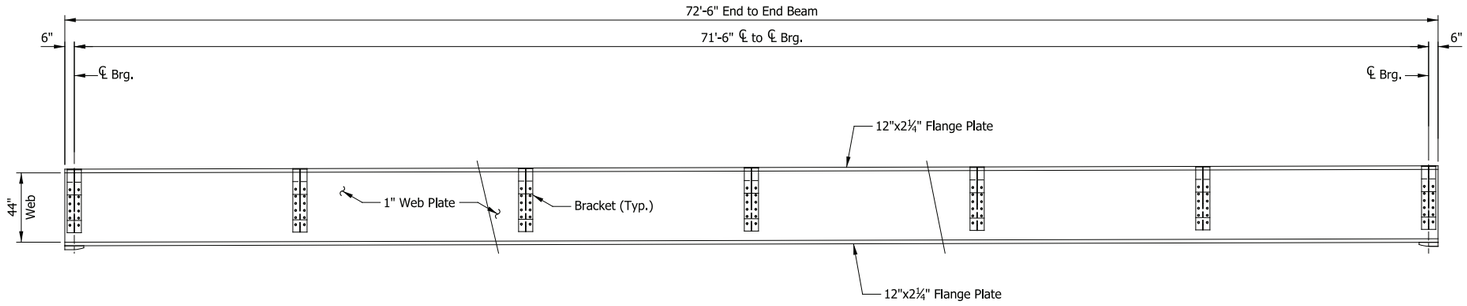
ELEVATED STRUCTURE 202
SUBSTRUCTURE DETAILS

FILENAME	SHT_WL_ST_ES202_SubstrDet_01.dgn
SCALE	AS NOTED

SHEET **56 OF 218**



FRAMING PLAN
Spans 1 thru 11
Scale: ¼" = 1'-0"



GIRDER EXTERIOR ELEVATION
Spans 1 thru 11
Scale: ¼" = 1'-0"

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES ES202-06 OF ES202-06

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NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

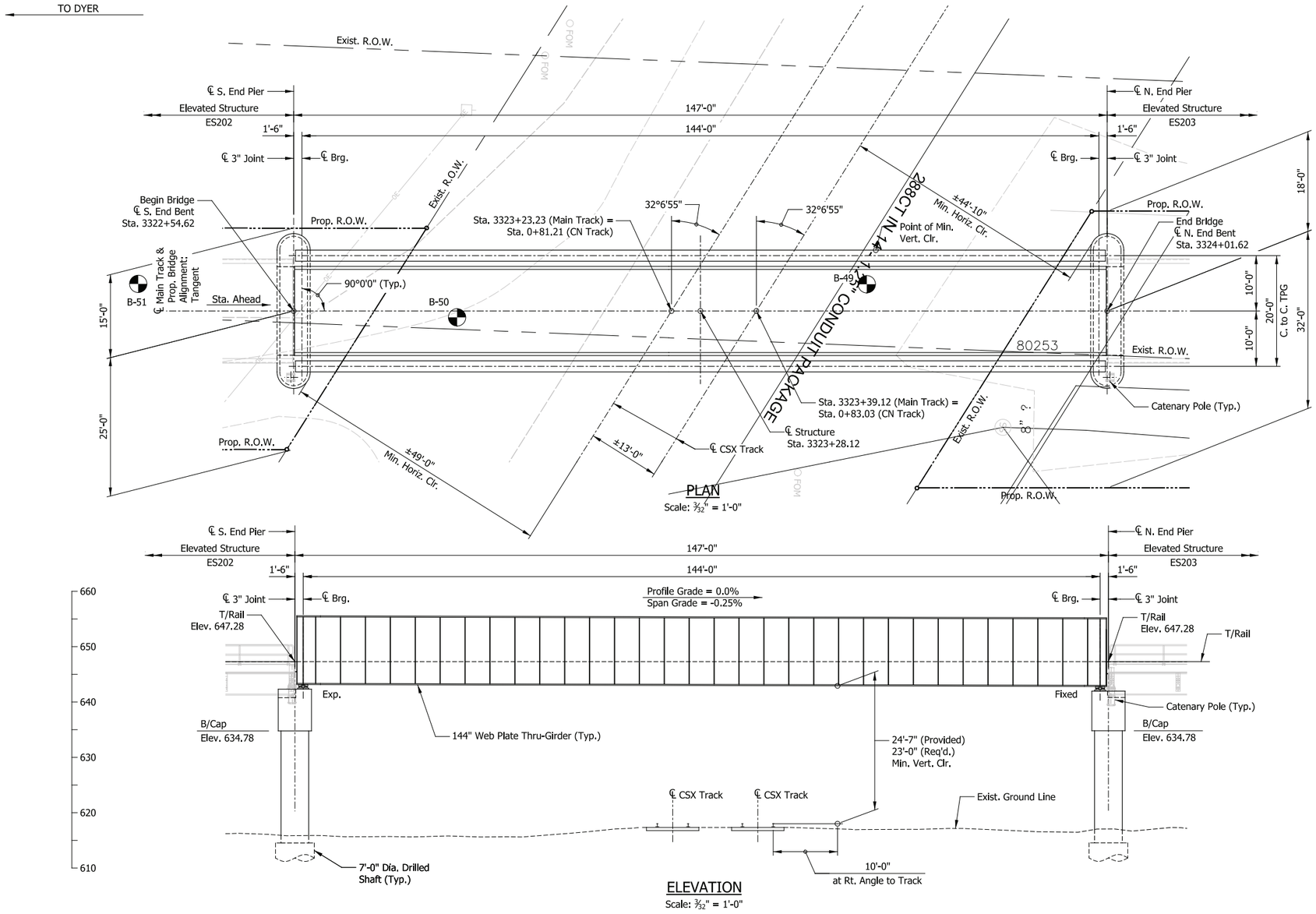
DYER TO HAMMOND, INDIANA

DESIGNED:	HDR-MAB
DRAWN:	HDR-JM
CHECKED:	HDR-JAL
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

ELEVATED STRUCTURE 202
FRAMING PLAN

FILENAME	SHT_WL_ST_ES202_FramPlan_01.dgn	SHEET
SCALE	AS NOTED	57 OF 218



DESIGN DATA

SPECIFICATIONS:
American Railway Engineering and Maintenance-of-Way Association (A.R.E.M.A.), Manual for Railway Engineering, 2016, Chapter 8 and 15.

LIVE LOADS:
Cooper E-50 and Ballast Train per Structural Design Criteria

DEAD LOADS:
Maximum Ballast Depth = 19 inches (at High End of Span)

DESIGN STRESSES:
Steel: fy = 50,000 psi (ASTM A709 Gr 50)
Reinforcing: fy = 60,000 psi (ASTM A615)
Concrete: f'c = 4,000 psi (Min.)

SHEET INDEX

CONSTRUCTION DEPTH

Rail (115 Lbs)	6 5/8"
Tie Plate	3/4"
Tie	7"
Ballast (min.)	6"
Waterproofing	1"
Deck Plate	3/4"
Floorbeam	20 3/8"
Bracing	4 1/2"
Bottom Flange	2 1/2"
	49 1/2"

NOTES

1. For track geometry, see Track Plans.
2. Downspouts not shown but required at all piers on side adjacent to low end of span.

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES BR105-01 OF BR105-04

PLOT DATE: November 08, 2017 6:09:46 PM JMIGUS

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NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

DYER TO HAMMOND, INDIANA

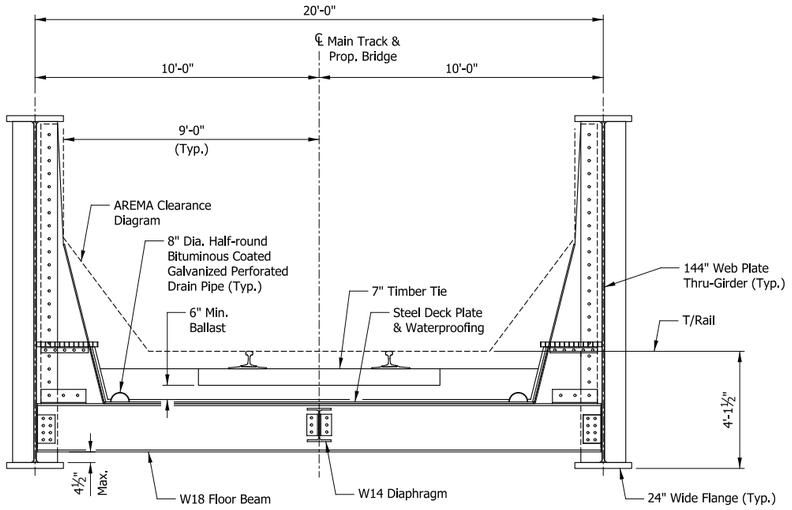
DESIGNED:	HDR-EJW
DRAWN:	HDR-JM
CHECKED:	HDR-JAL
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

BRIDGE 105 - NICTD OVER CSX RR
GENERAL PLAN & ELEVATION

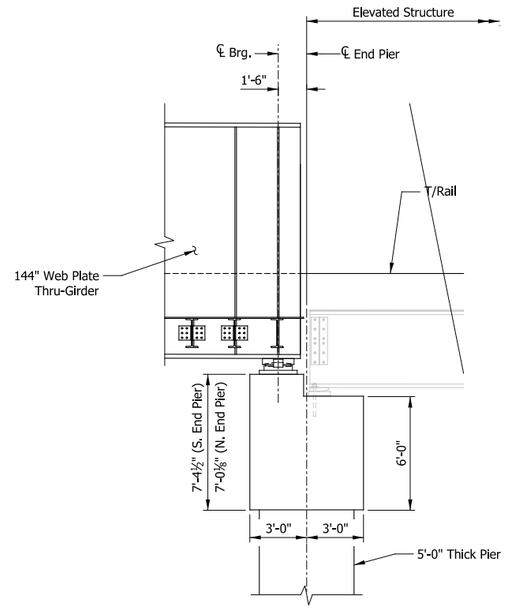
FILENAME	SHT_WL_ST_BR105_GenPlan_01.dgn
SCALE	AS NOTED

SHEET **58 OF 218**



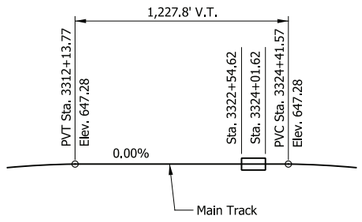
TYPICAL SECTION

Scale: ⅜" = 1'-0"



SECTION THRU END PIER

Scale: ¼" = 1'-0"



TOP OF RAIL PROFILE

Not to Scale

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES BR105-02 OF BR105-04

PLOT DATE: November 08, 2017 6:09:54 PM JMIGUS

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33 East Highway 12
Chesterton, Indiana 46304

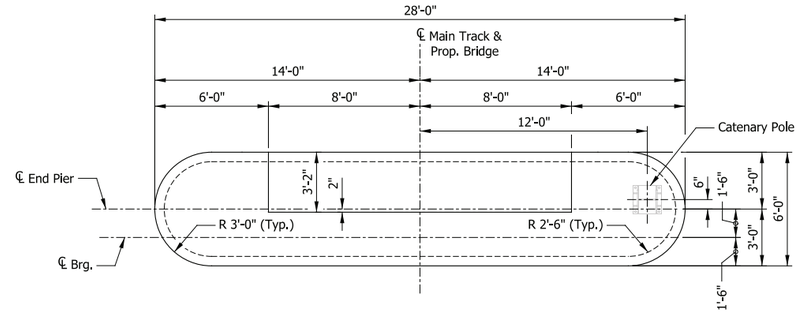
DYER TO HAMMOND, INDIANA

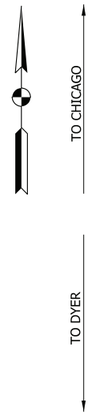
DESIGNED:	HDR-EJW
DRAWN:	HDR-JM
CHECKED:	HDR-JAL
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

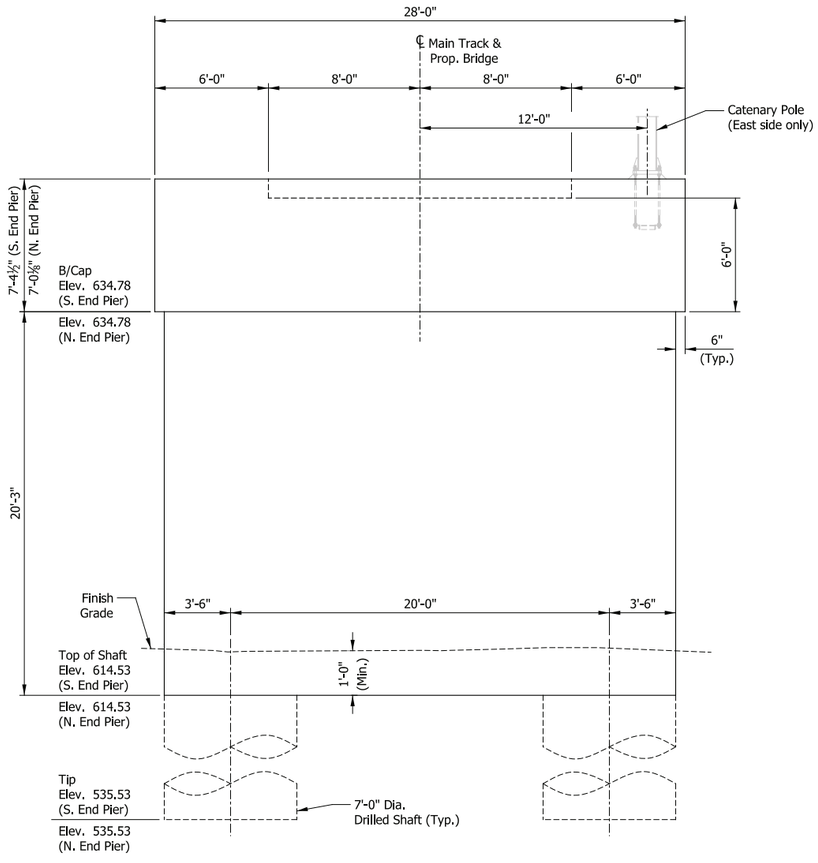
BRIDGE 105 - NICTD OVER CSX RR
TYPICAL DETAILS

FILENAME	SHT_WL_ST_BR105_TypDet_01.dgn	SHEET
SCALE	AS NOTED	**59 OF 218**

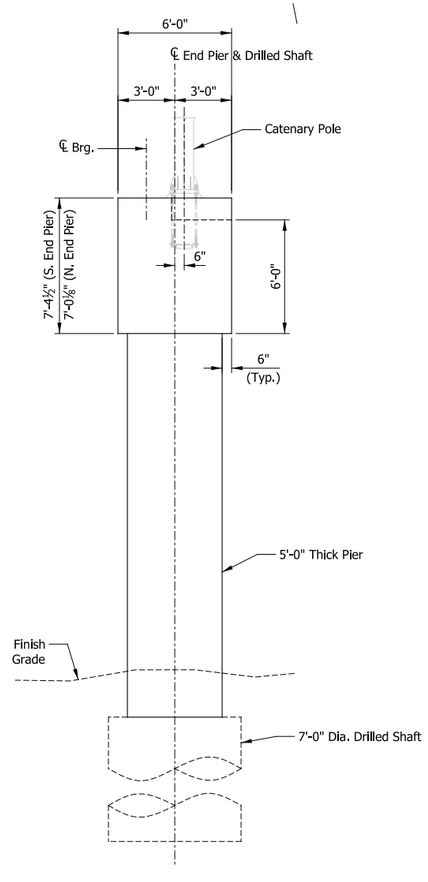




PLAN
Scale: ¼" = 1'-0"



ELEVATION
Scale: ¼" = 1'-0"



END VIEW
Scale: ¼" = 1'-0"

END PIER
(N. End Pier Shown, S. End Pier Similar)

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES BR105-03 OF BR105-04

PLOT DATE: November 08, 2017 6:10:02 PM JMIGUS

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DYER TO HAMMOND, INDIANA

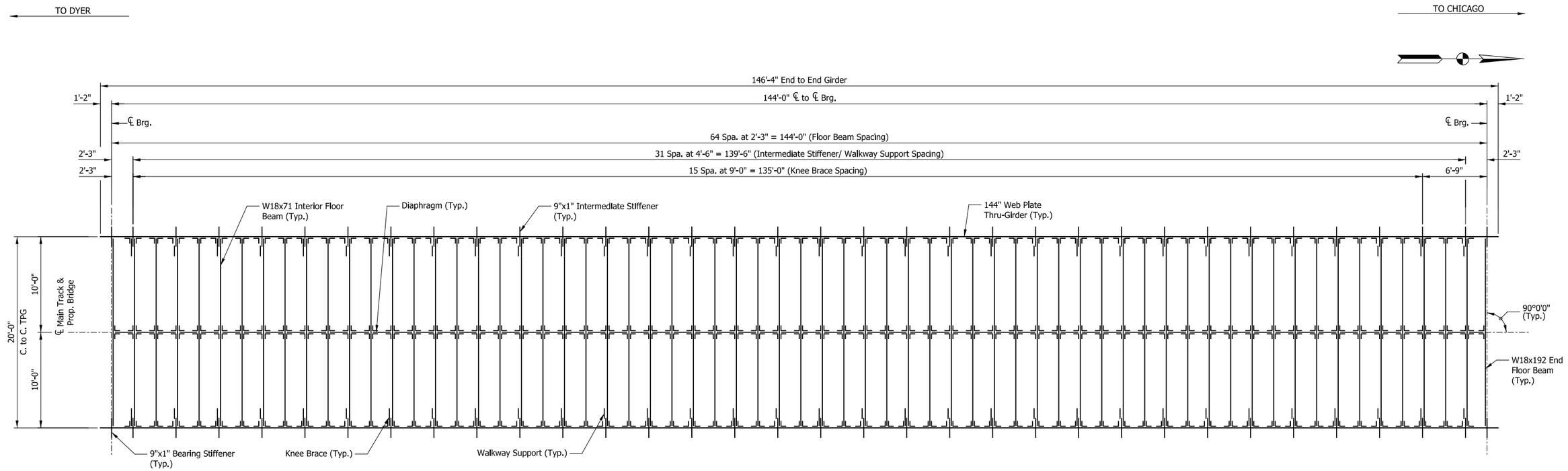
DESIGNED:	HDR-LG
DRAWN:	HDR-JM
CHECKED:	HDR-JAL
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

BRIDGE 105 - NICTD OVER CSX RR
SUBSTRUCTURE DETAILS

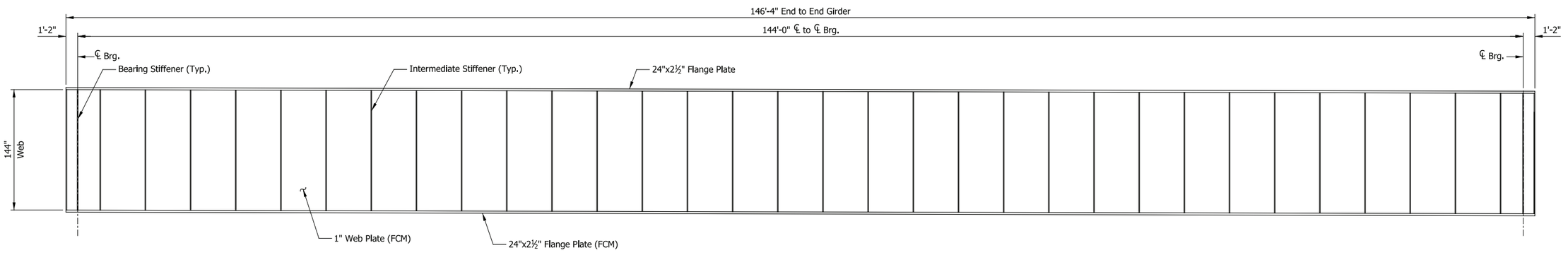
FILENAME	SHT_WL_ST_BR105_SubstrDet_01.dgn
SCALE	AS NOTED

SHEET **60 OF 218**



FRAMING PLAN

Scale: 3/16" = 1'-0"



GIRDER EXTERIOR ELEVATION

Scale: 3/16" = 1'-0"

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES BR105-04 OF BR105-04

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33 East Highway 12
Chesterton, Indiana 46304

DYER TO HAMMOND, INDIANA

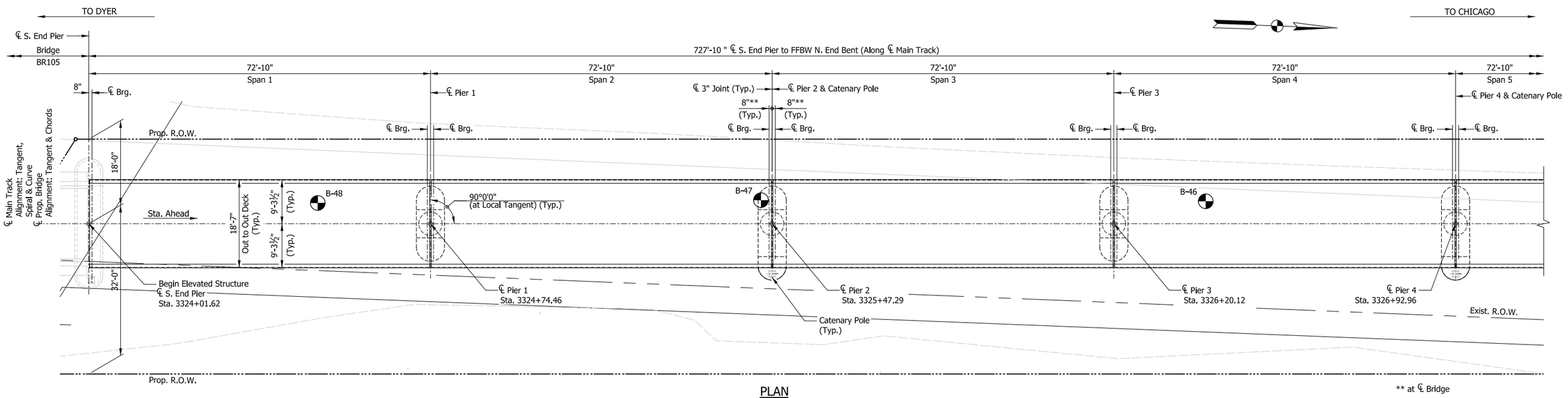
DESIGNED:	HDR-EJW
DRAWN:	HDR-JM
CHECKED:	HDR-JAL
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

BRIDGE 105 - NICTD OVER CSX RR
FRAMING PLAN

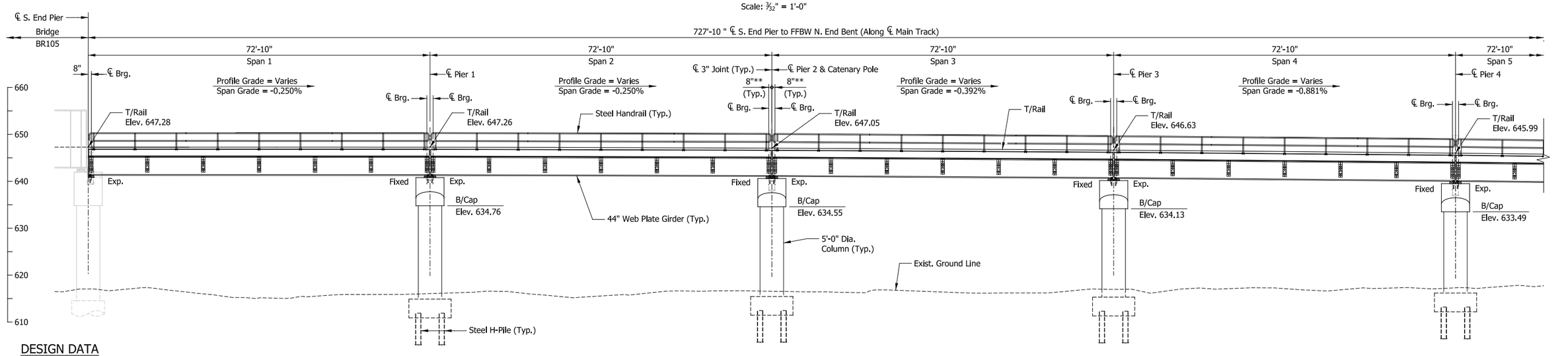
FILENAME	SHT_WL_ST_BR105_FramPlan_01.dgn
SCALE	AS NOTED

SHEET **61 OF 218**



PLAN

Scale: 3/32" = 1'-0"



ELEVATION

Scale: 3/32" = 1'-0"

DESIGN DATA

SPECIFICATIONS:
American Railway Engineering and Maintenance-of-Way Association (A.R.E.M.A.), Manual for Railway Engineering, 2016, Chapter 8 and 15.

LIVE LOADS:
Cooper E-50 and Ballast Train per Structural Design Criteria

DEAD LOADS:
Maximum Ballast Depth = 21 inches (at High End of Span)

DESIGN STRESSES:
Steel: fy = 50,000 psi (ASTM A709 Gr 50)
Reinforcing: fy = 60,000 psi (ASTM A615)
Concrete: f'c = 4,000 psi (Min.)

CONSTRUCTION DEPTH

Rail (115 RE)	6 5/8"
Tie Plate	¾"
Tie	7"
Ballast (min.)	8"
Waterproofing	1"
Deck Plate	⅝"
Top Flange	2¼"
Web	44"
Bottom Flange	2¼"
	72½"

SHEET INDEX

NOTES

1. For track geometry, see Track Plans.
2. Downspouts not shown but required at all piers on side adjacent to low end of span.
3. All ℄ Piers = ℄ Track

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES ES203-01 OF ES203-08

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33 East Highway 12
Chesterton, Indiana 46304

WEST LAKE CORRIDOR
DYER TO HAMMOND, INDIANA

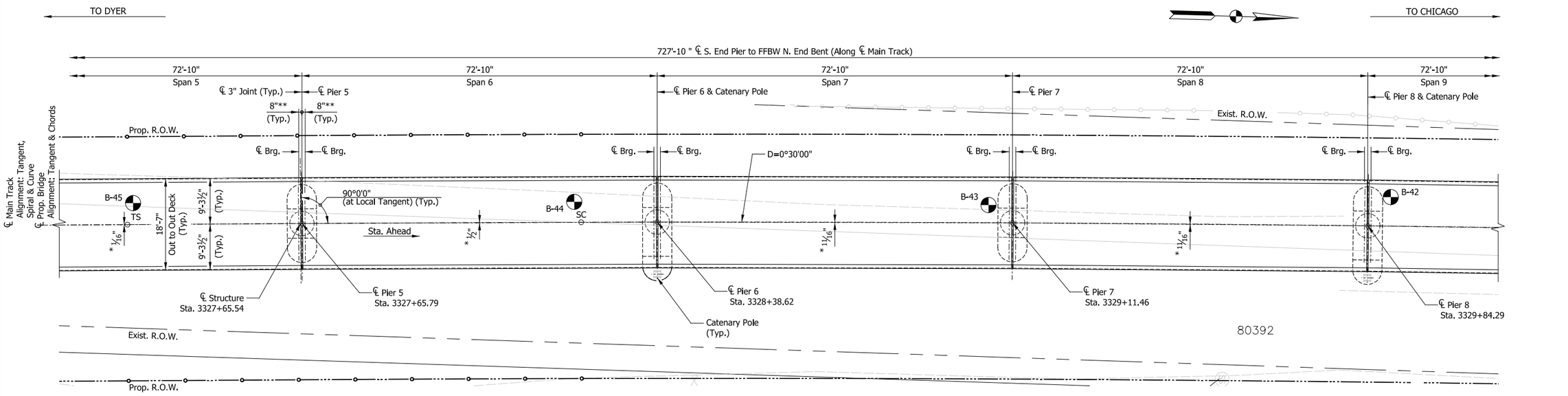
DESIGNED:	HDR-MAB
DRAWN:	HDR-JM
CHECKED:	HDR-JAL
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

ELEVATED STRUCTURE 203
GENERAL PLAN & ELEVATION (1 OF 3)

FILENAME	SHT_WL_ST_ES203_GenPlan_01.dgn
SCALE	AS NOTED

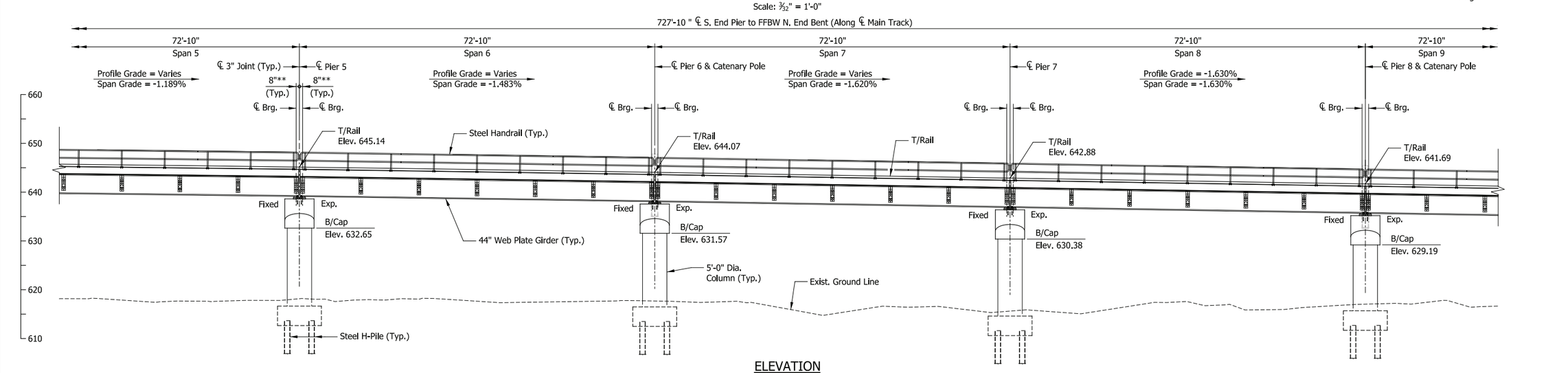
SHEET **62 OF 218**



PLAN

Scale: 3/32" = 1'-0"

* Middle Ordinate of Chorded Span
** at ℄ Bridge



ELEVATION

Scale: 3/32" = 1'-0"

NOTES

1. For track geometry, see Track Plans.
2. Downspouts not shown but required at all piers on side adjacent to low end of span.
3. All ℄ Piers = ℄ Track

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES ES203-02 OF ES203-08

PLOT DATE: November 08, 2017 6:10:36 PM JMIGUS

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NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

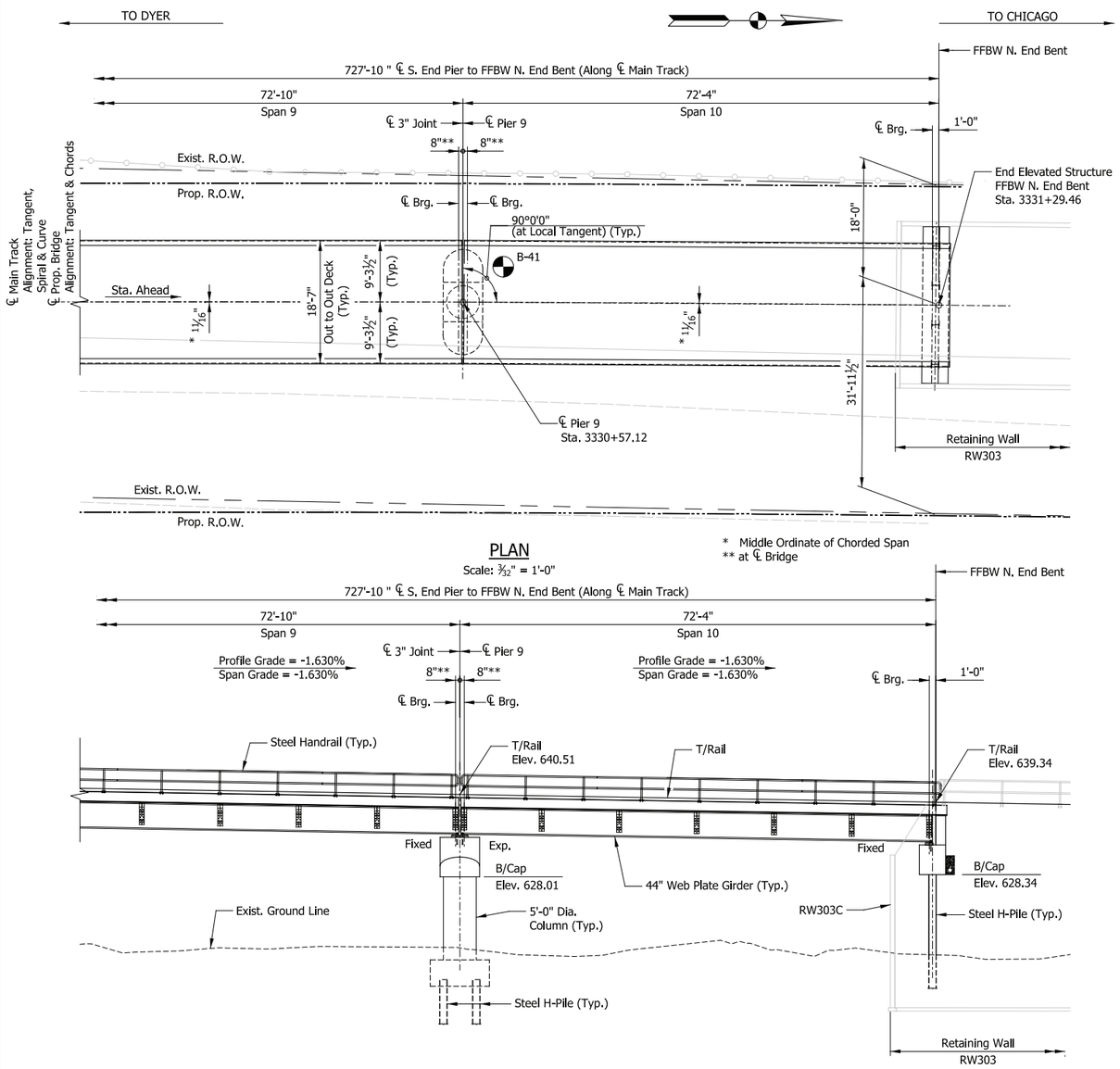
DYER TO HAMMOND, INDIANA

DESIGNED:	HDR-MAB
DRAWN:	HDR-JM
CHECKED:	HDR-JAL
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

ELEVATED STRUCTURE 203
GENERAL PLAN & ELEVATION (2 OF 3)

FILENAME	SHT_WL_ST_ES203_GenPlan_02.dgn	SHEET
SCALE	AS NOTED	63 OF 218



NOTES

1. For track geometry, see Track Plans.
2. Downspouts not shown but required at all piers on side adjacent to low end of span.
3. All ℄ Piers = ℄ Track

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES ES203-03 OF ES203-08

PLOT DATE: November 08, 2017 6:10:46 PM JMIGUS

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33 East Highway 12
Chesterton, Indiana 46304

WEST LAKE CORRIDOR
DYER TO HAMMOND, INDIANA

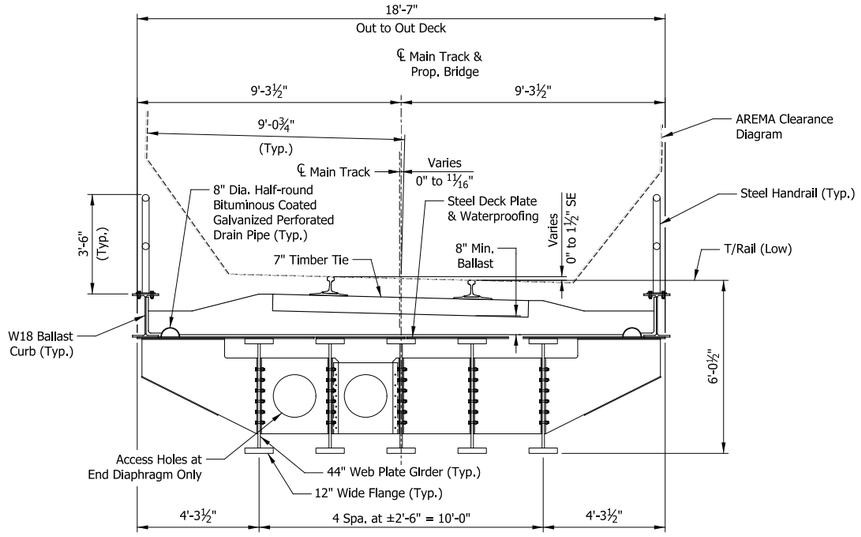
DESIGNED:	HDR-MAB
DRAWN:	HDR-JM
CHECKED:	HDR-JAL
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

ELEVATED STRUCTURE 203
GENERAL PLAN & ELEVATION (3 OF 3)

FILENAME	SHT_WL_ST_ES203_GenPlan_03.dgn
SCALE	AS NOTED

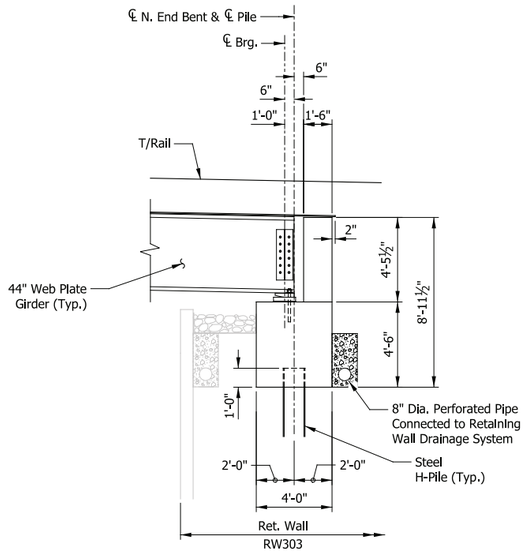
SHEET **64 OF 218**



AT END DIAPHRAGM AT INTERMEDIATE DIAPHRAGM

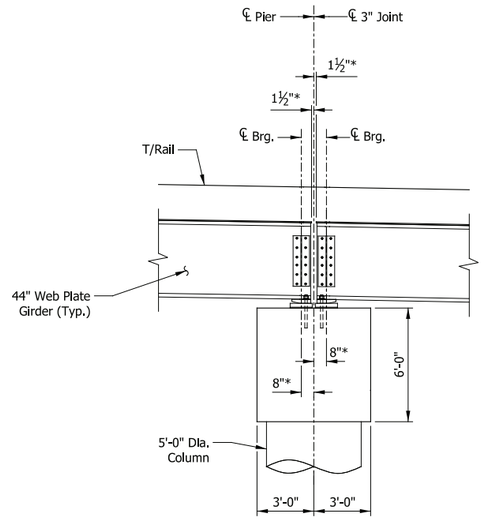
TYPICAL SECTION

Scale: ⅜" = 1'-0"



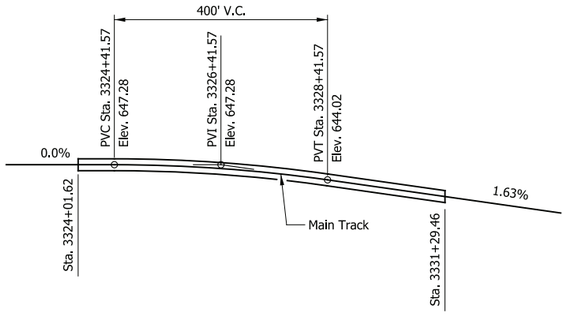
SECTION THRU N. END BENT

Scale: ¼" = 1'-0"



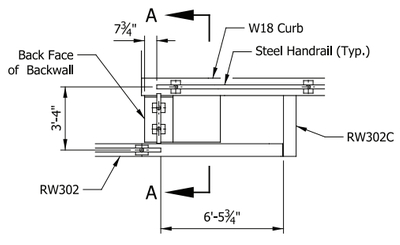
SECTION THRU PIER

Scale: ¼" = 1'-0"
* at ℄ Bridge



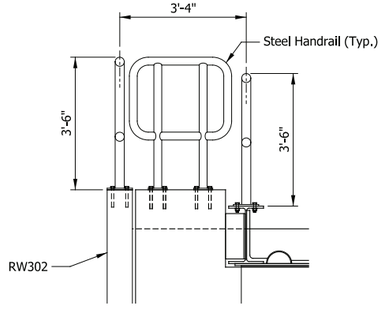
TOP OF RAIL PROFILE

Not to Scale



HANDRAIL LAYOUT AT BRIDGE SOUTH CORNERS

Scale: ¼" = 1'-0"



VIEW A-A

Scale: ½" = 1'-0"

NOTES

1. Outfall from Drainage System to be routed and detailed similar to those provided for Retaining Wall Underdrains.

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES ES203-04 OF ES203-08

PLOT DATE: November 08, 2017 6:10:52 PM JMIGUS

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33 East Highway 12
Chesterton, Indiana 46304

DYER TO HAMMOND, INDIANA

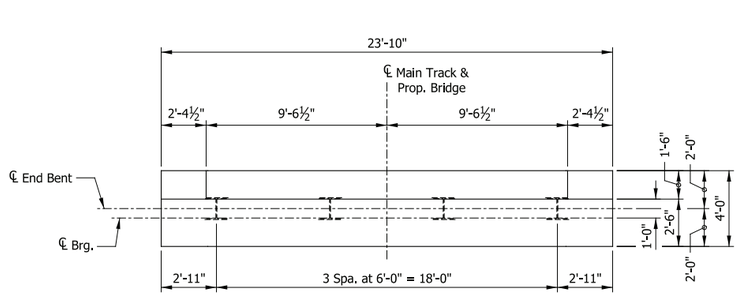
DESIGNED:	HDR-MAB
DRAWN:	HDR-JM
CHECKED:	HDR-RVC
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

ELEVATED STRUCTURE 203
TYPICAL DETAILS

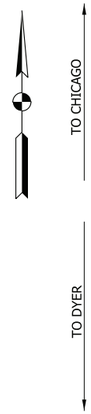
FILENAME	SHT_WL_ST_ES203_TypDet_01.dgn
SCALE	AS NOTED

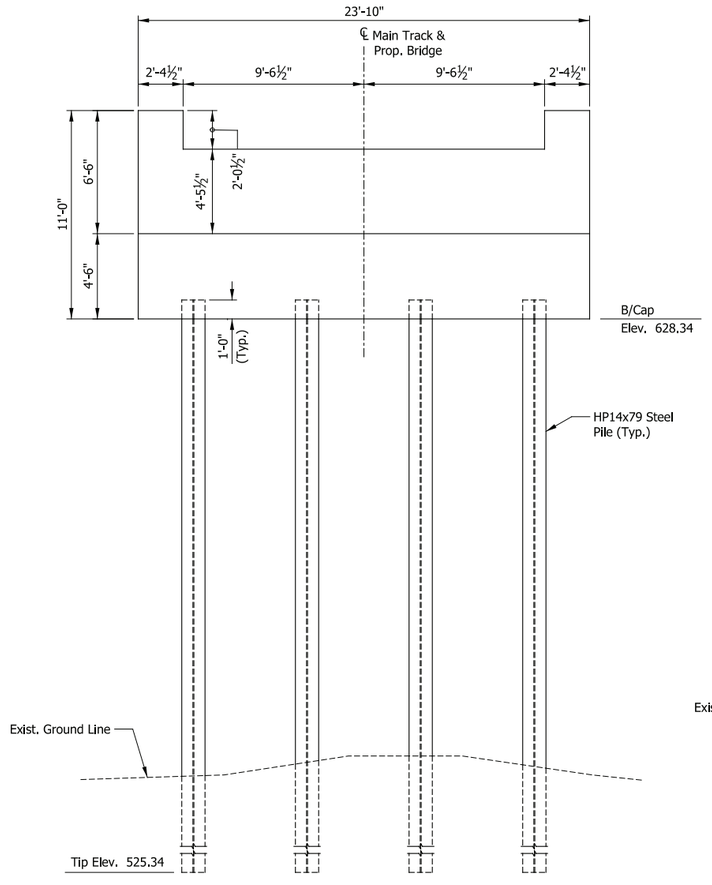
SHEET **65 OF 218**



PLAN

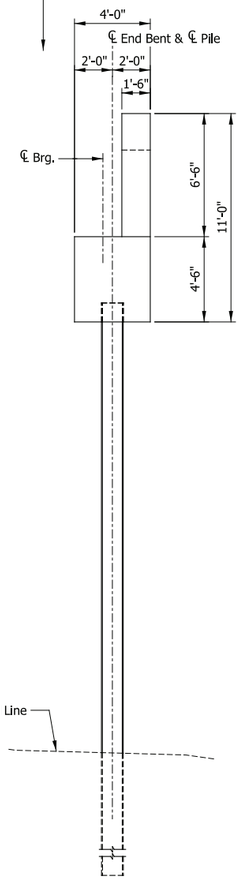
Scale: ¼" = 1'-0"





ELEVATION

Scale: ¼" = 1'-0"



END VIEW

Scale: ¼" = 1'-0"

NORTH END BENT

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES ES203-05 OF ES203-08

PLOT DATE: November 08, 2017 6:11:00 PM JMIGUS

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NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

WEST LAKE CORRIDOR

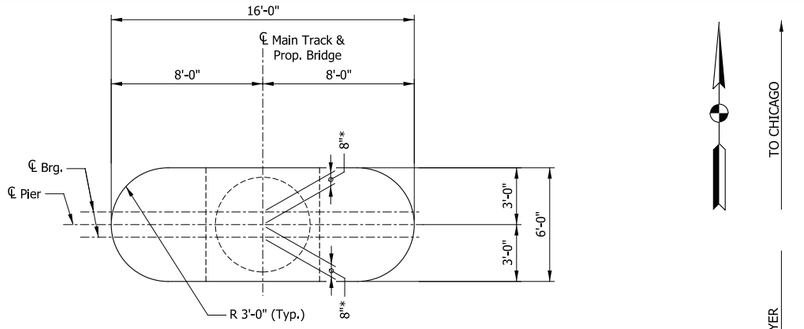
DYER TO HAMMOND, INDIANA

DESIGNED:	HDR-MCV
DRAWN:	HDR-JM
CHECKED:	HDR-JAL
DATE:	07/21/17

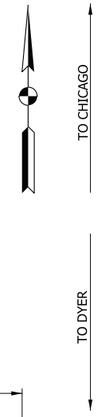
NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

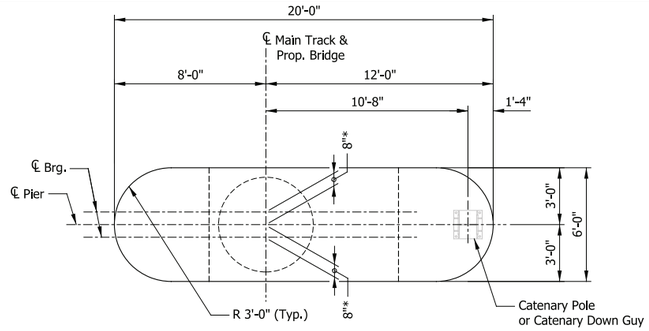
ELEVATED STRUCTURE 203
SUBSTRUCTURE DETAILS (1 OF 2)

FILENAME	SHT_WL_ST_ES203_SubstrDet_01.dgn	SHEET
SCALE	AS NOTED	**66 OF 218**

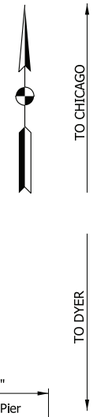


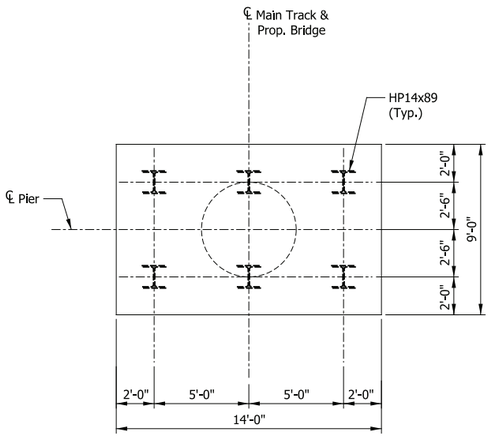
PLAN
Scale: ¼" = 1'-0"



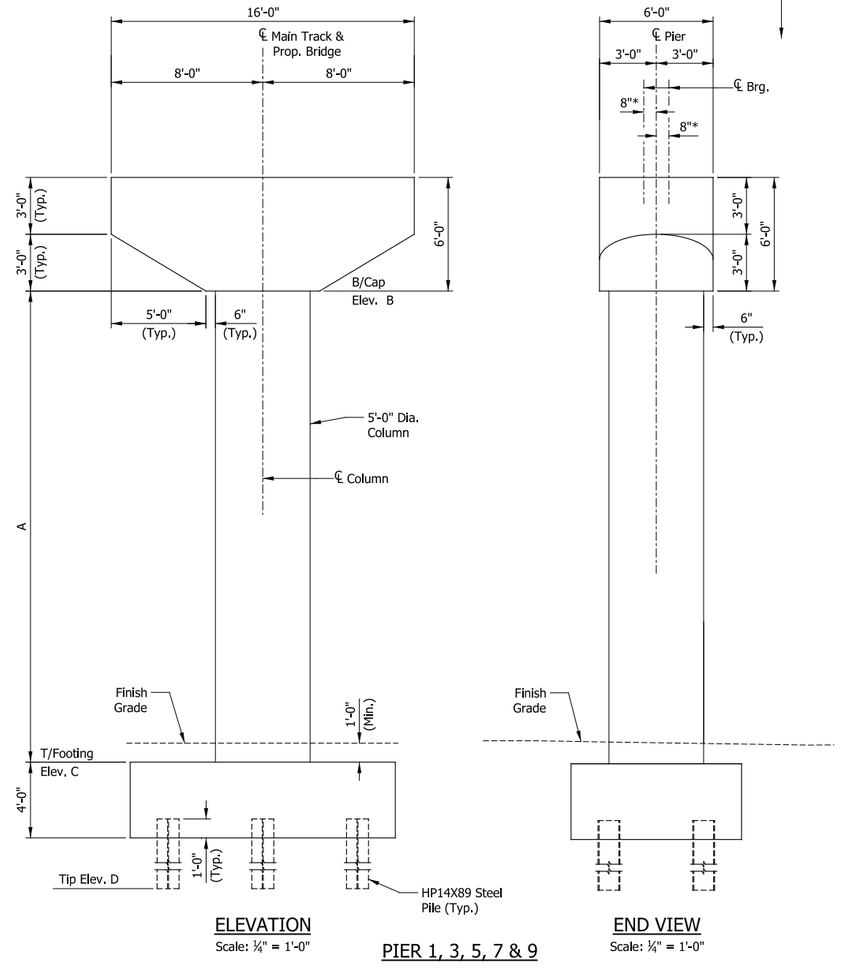


PLAN
Scale: ¼" = 1'-0"





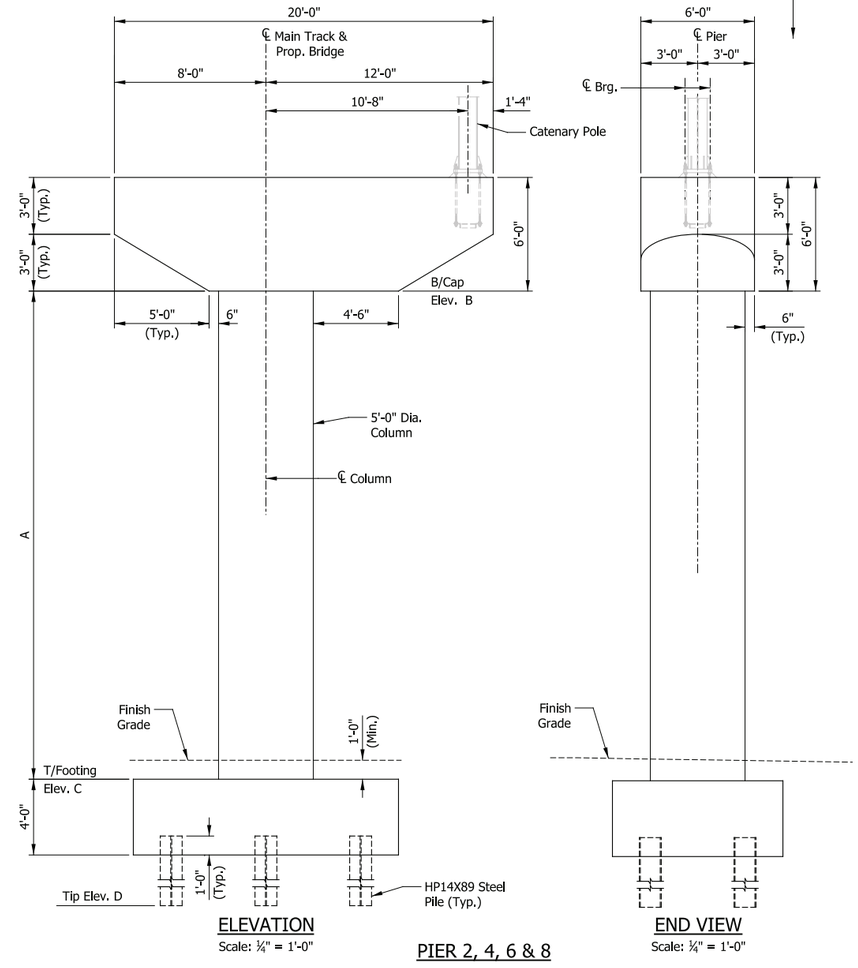
FOOTING PLAN (TYP.)
Scale: ¼" = 1'-0"



ELEVATION
Scale: ¼" = 1'-0"

END VIEW
Scale: ¼" = 1'-0"

PIER 1, 3, 5, 7 & 9



ELEVATION
Scale: ¼" = 1'-0"

END VIEW
Scale: ¼" = 1'-0"

PIER 2, 4, 6 & 8

GEOMETRY TABLE

LOCATION	Dim. A	Elev. B	Elev. C	Elev. D
Pier 1	19'-9"	634.62	615.01	573.01
Pier 2	19'-0"	634.44	615.55	573.55
Pier 3	18'-2"	634.14	615.96	573.96
Pier 4	17'-4"	633.49	616.16	574.16
Pier 5	15'-9"	632.62	616.90	574.90
Pier 6	15'-0"	631.57	616.57	574.57
Pier 7	16'-0"	630.38	614.38	572.38
Pier 8	13'-3"	629.19	615.94	573.94
Pier 9	12'-2"	627.99	615.84	573.84

* For Piers 5 through 9, Bearing Lines are not parallel to ℄ Pier. Bearing offset varies with the dimension shown measured at ℄ Main Track.

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES ES203-06 OF ES203-08

PLOT DATE: November 08, 2017 6:11:09 PM JMIGUS

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ISSUE	DATE	DESCRIPTION
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NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

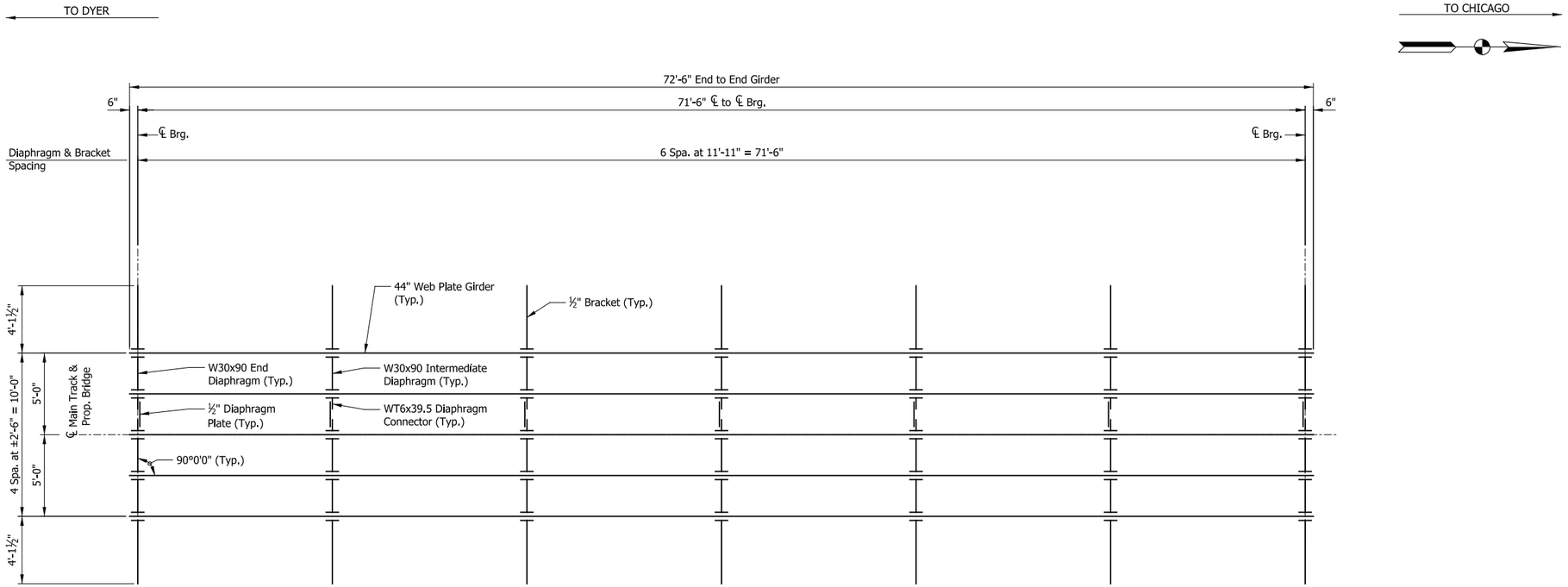
DYER TO HAMMOND, INDIANA

DESIGNED:	HDR-MCV
DRAWN:	HDR-JM
CHECKED:	HDR-JAL
DATE:	07/21/17

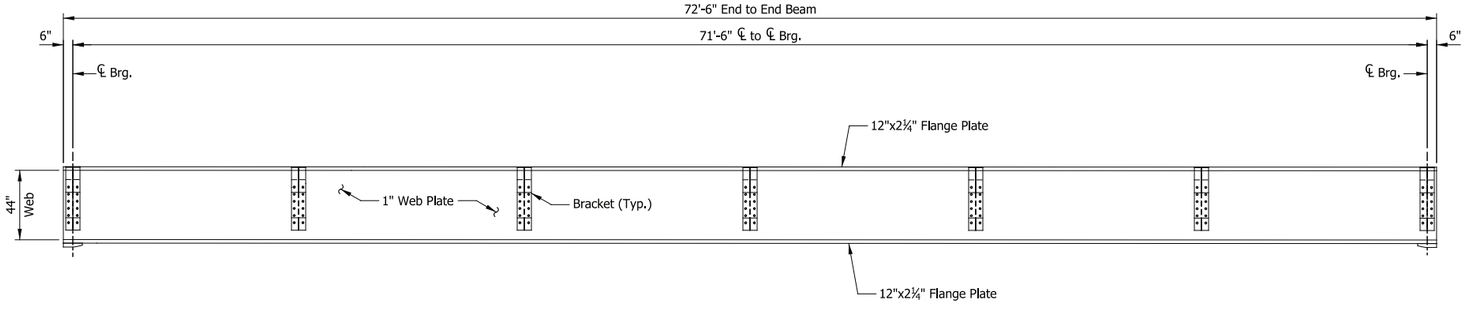
NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

ELEVATED STRUCTURE 203
SUBSTRUCTURE DETAILS (2 OF 2)

FILENAME	SHT_WL_ST_ES203_SubstrDet_02.dgn	SHEET
SCALE	AS NOTED	67 OF 218



FRAMING PLAN
Spans 1 thru 9
Scale: ¼" = 1'-0"



GIRDER EXTERIOR ELEVATION
Spans 1 thru 9
Scale: ¼" = 1'-0"

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES ES203-07 OF ES203-08

PLOT DATE: November 08, 2017 6:11:14 PM JMIGUS

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NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

DYER TO HAMMOND, INDIANA

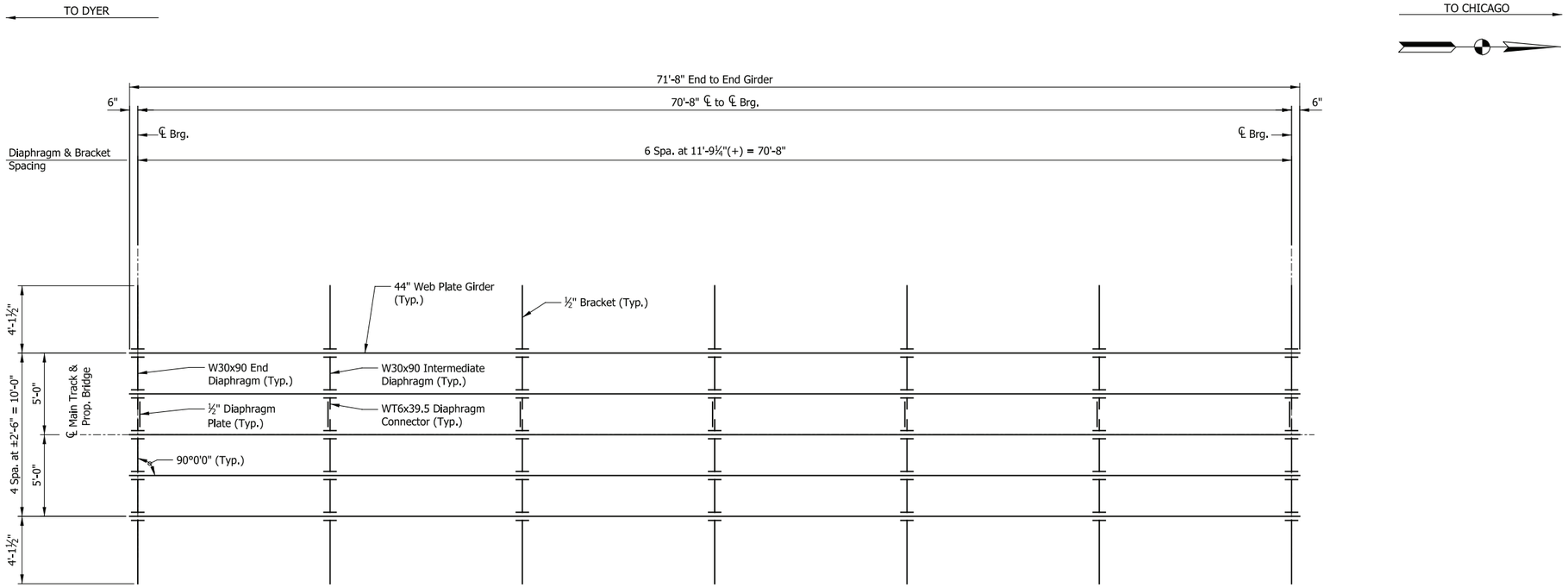
DESIGNED:	HDR-MAB
DRAWN:	HDR-JM
CHECKED:	HDR-JAL
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

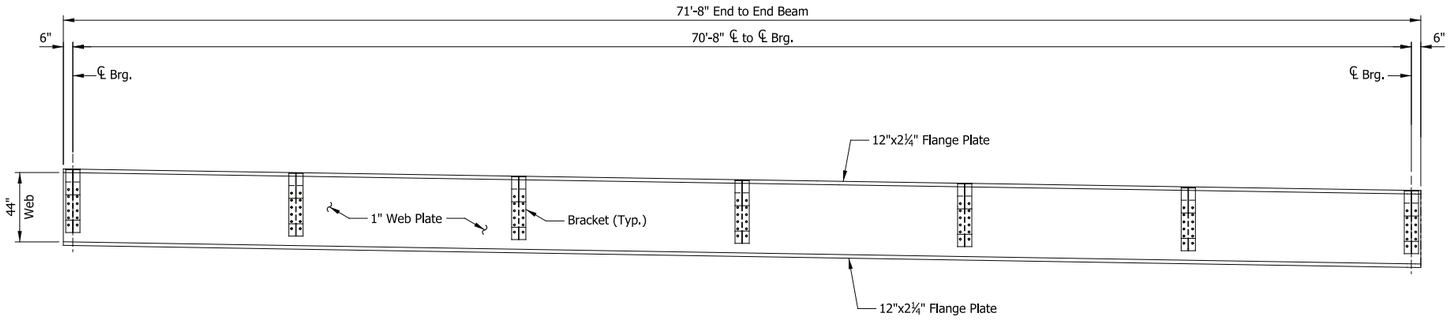
ELEVATED STRUCTURE 203
FRAMING PLAN (1 OF 2)

FILENAME	SHT_WL_ST_ES203_FramPlan_01.dgn
SCALE	AS NOTED

SHEET **68 OF 218**



FRAMING PLAN
Span 10
Scale: ¼" = 1'-0"



GIRDER EXTERIOR ELEVATION
Span 10
Scale: ¼" = 1'-0"

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES ES203-08 OF ES203-08

PLOT DATE: November 08, 2017 6:11:19 PM JMIGUS

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ISSUE	DATE	DESCRIPTION
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NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

DYER TO HAMMOND, INDIANA

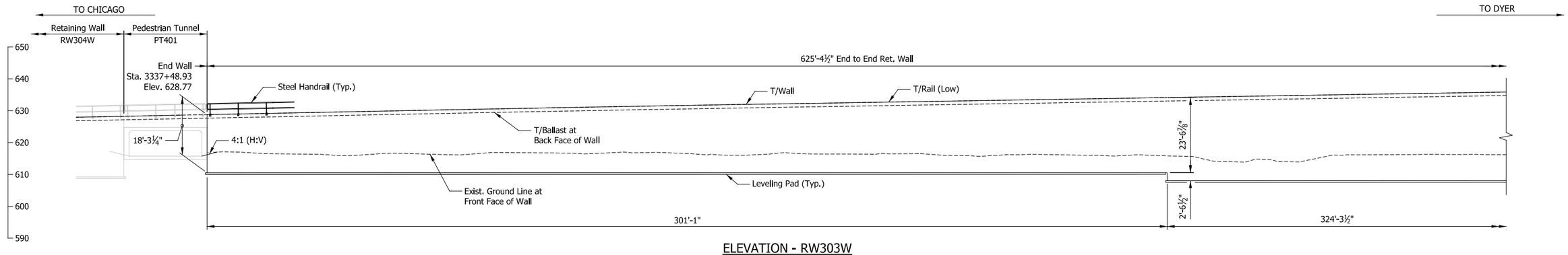
DESIGNED:	HDR-MAB
DRAWN:	HDR-JM
CHECKED:	HDR-JAL
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

ELEVATED STRUCTURE 203
FRAMING PLAN (2 OF 2)

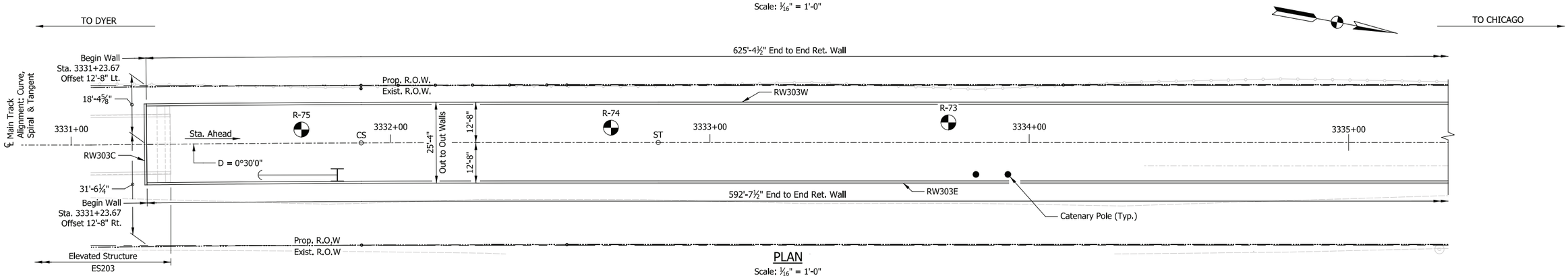
FILENAME	SHT_WL_ST_ES203_FramPlan_02.dgn
SCALE	AS NOTED

SHEET **69 OF 218**



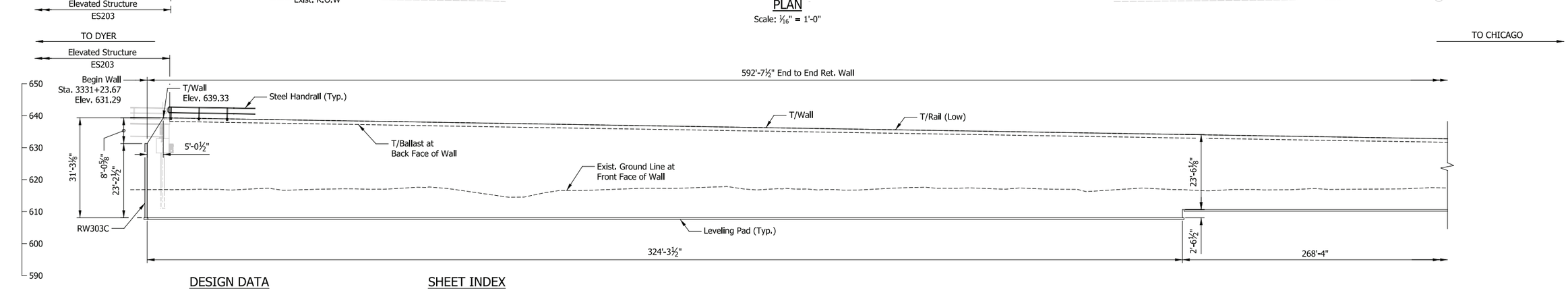
ELEVATION - RW303W

(Looking East)
Scale: 1/16" = 1'-0"



PLAN

Scale: 1/16" = 1'-0"



ELEVATION - RW303E

(Looking West)
Scale: 1/16" = 1'-0"

DESIGN DATA

SPECIFICATIONS:
American Railway Engineering and Maintenance-of-Way Association (A.R.E.M.A.), Manual for Railway Engineering, 2016, Chapter 8 and 15.

LIVE LOADS:
Cooper E-50 and Ballast Train per Structural Design Criteria

DESIGN STRESSES:
Steel: fy = 50,000 psi (ASTM A709 Gr 50)
Reinforcing: fy = 60,000 psi (ASTM A615)
Concrete: f'c = 4,000 psi (Min.)

SHEET INDEX

NOTES

1. For track geometry, see Track Plans.
2. For clarity Catenary Poles and associated infrastructure not shown in elevation views. For details, see System Plans.

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES RW303-01 OF RW303-05

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ISSUE	DATE	DESCRIPTION

NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

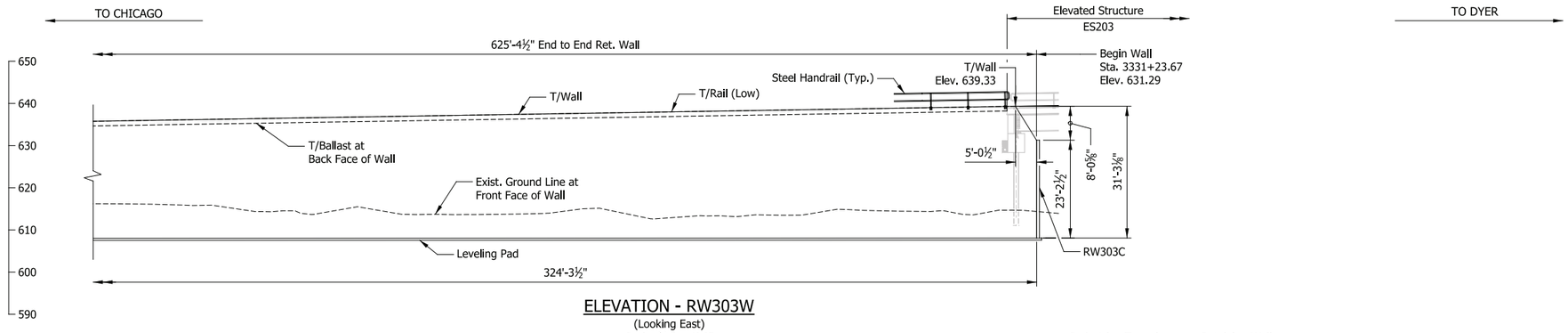
DYER TO HAMMOND, INDIANA

DESIGNED:	LOCH-JLH
DRAWN:	LOCH-DJG
CHECKED:	LOCH-EJG
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

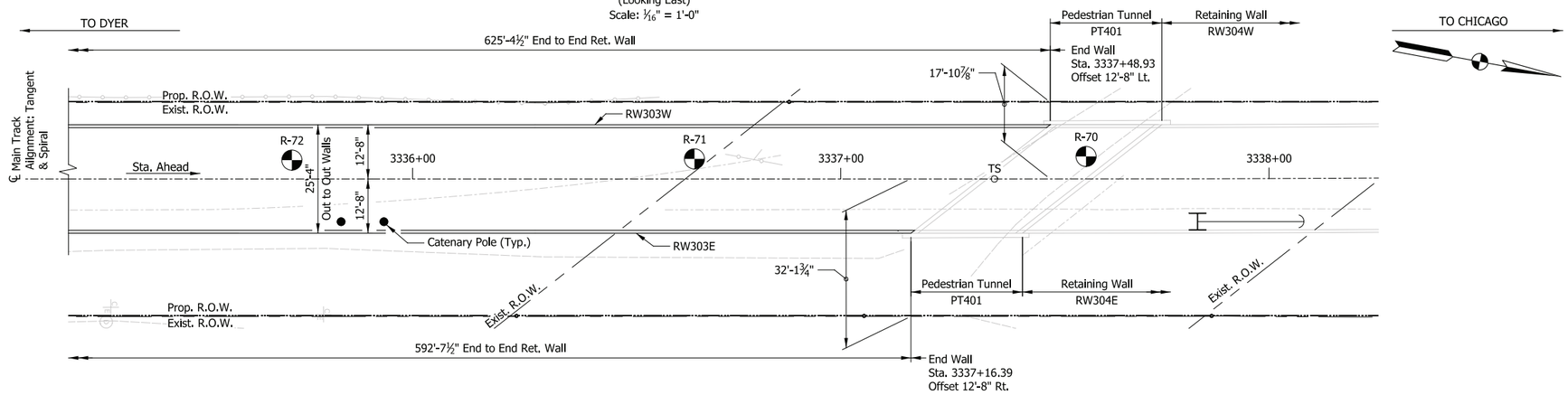
RETAINING WALLS 303W & 303E
GENERAL PLAN & ELEVATION (1 of 2)

FILENAME	SHT_WL_ST_RW303_GenPlan_01.dgn	SHEET
SCALE	AS NOTED	70 OF 218



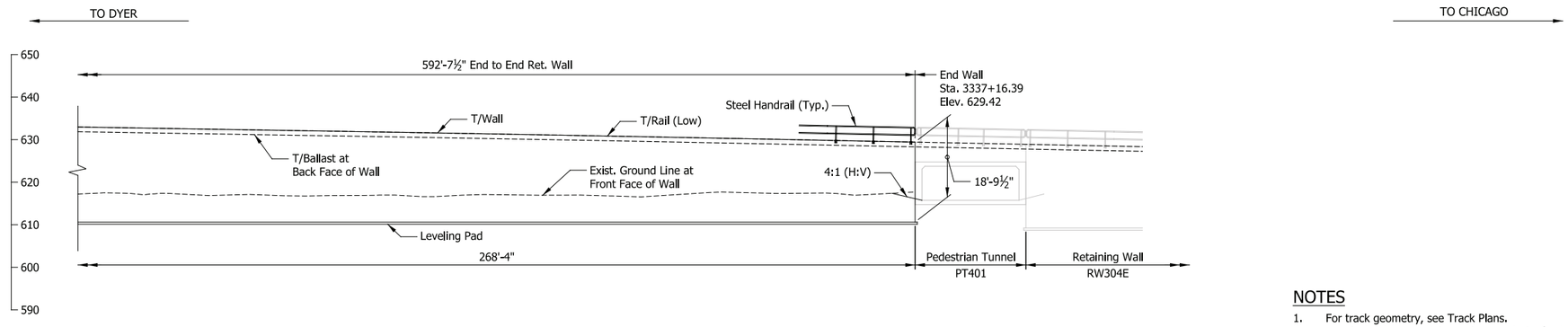
ELEVATION - RW303W

(Looking East)
Scale: 1/16" = 1'-0"



PLAN

Scale: 1/16" = 1'-0"



ELEVATION - RW303E

(Looking West)
Scale: 1/16" = 1'-0"

NOTES

1. For track geometry, see Track Plans.
2. For clarity Catenary Poles and associated infrastructure not shown in elevation views. For details, see System Plans.

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES RW303-02 OF RW303-05

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NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

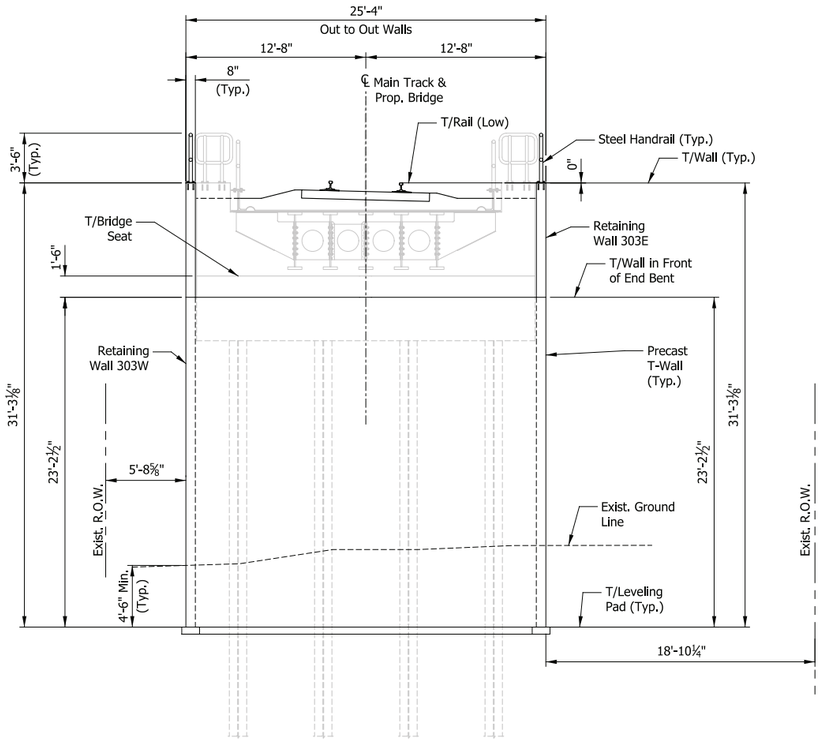
DYER TO HAMMOND, INDIANA

DESIGNED:	LOCH-JLH
DRAWN:	LOCH-DJG
CHECKED:	LOCH-EJG
DATE:	07/21/17

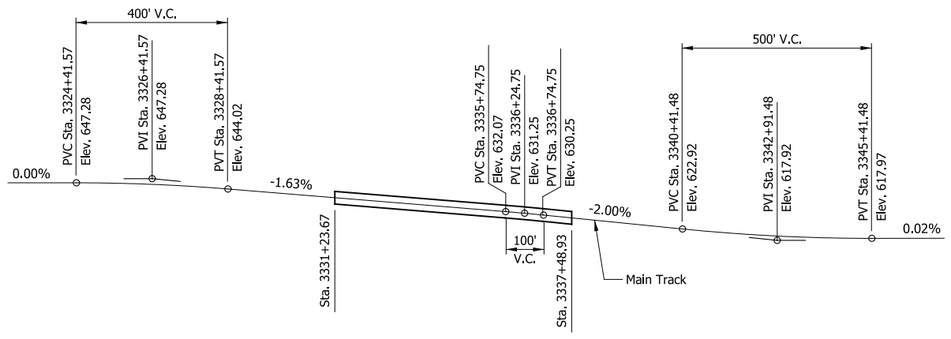
NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

RETAINING WALLS 303W & 303E
GENERAL PLAN & ELEVATION (2 of 2)

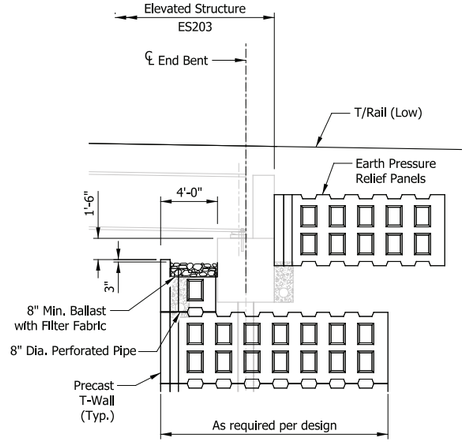
FILENAME	SHT_WL_ST_RW303_GenPlan_02.dgn	SHEET
SCALE	AS NOTED	71 OF 218



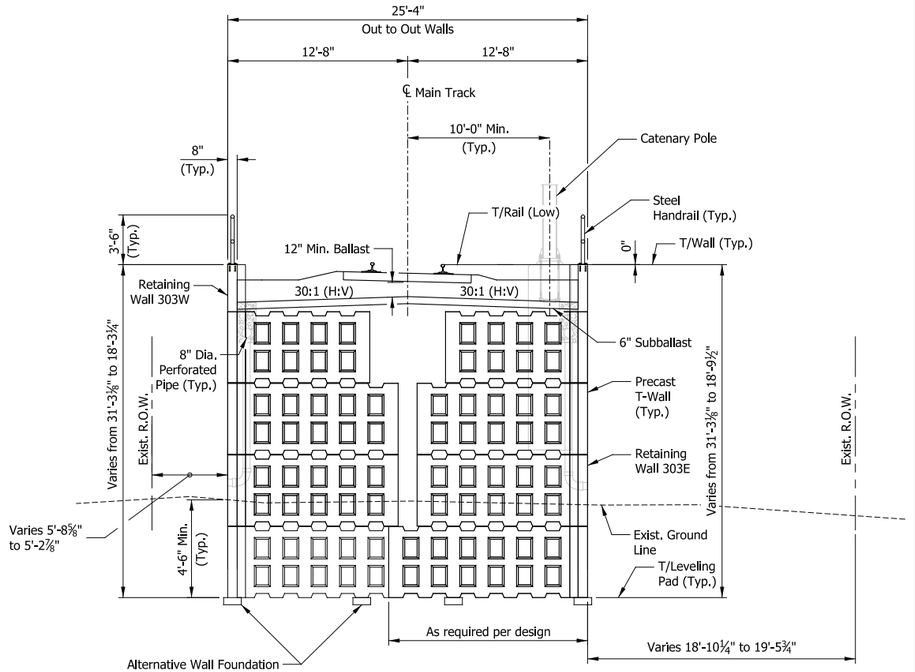
ELEVATION - RW303C
(Looking Upstation)
Scale: 3/16" = 1'-0"



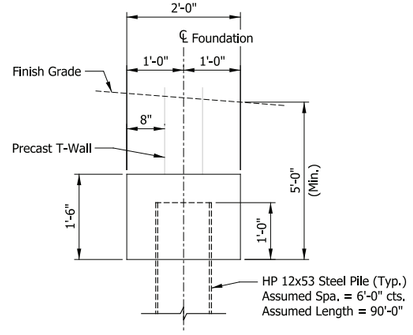
TOP OF RAIL PROFILE
Not to Scale



SECTION THRU END BENT (ES203)
Scale: 3/16" = 1'-0"



TYPICAL SECTION
(Looking Upstation)
Scale: 3/16" = 1'-0"



ALTERNATIVE WALL FOUNDATION
Scale: ¾" = 1'-0"

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES RW303-03 OF RW303-05

PLOT DATE: November 08, 2017 6:12:08 PM JMIGUS

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NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

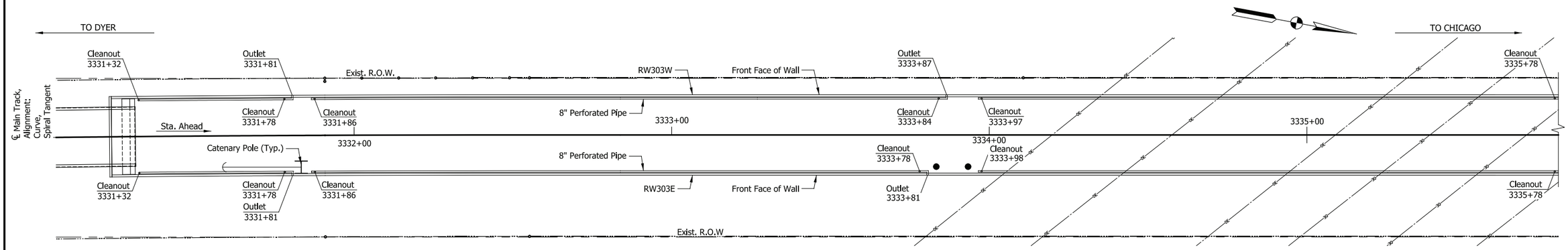
DYER TO HAMMOND, INDIANA

DESIGNED:	LOCH-JLH
DRAWN:	LOCH-DJG
CHECKED:	LOCH-EJG
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

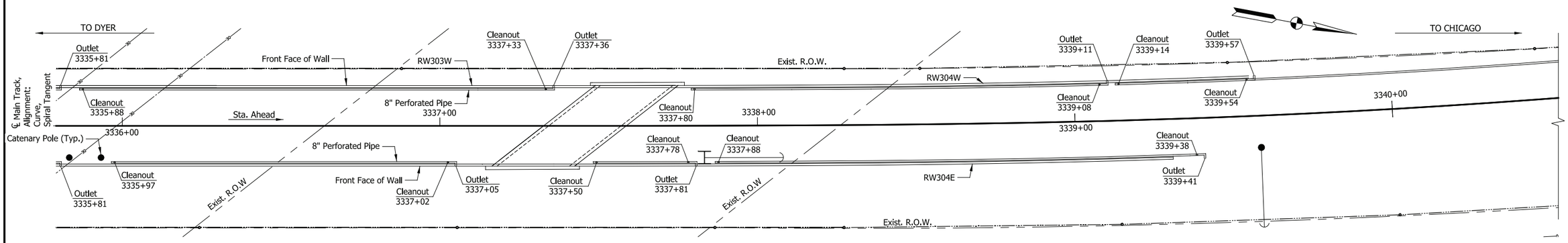
RETAINING WALLS 303W & 303E
TYPICAL DETAILS

FILENAME	SHT_WL_ST_RW303_TypDet_01.dgn	SHEET
SCALE	AS NOTED	72 OF 218



PLAN

Scale: 1/16" = 1'-0"



PLAN

Scale: 1/16" = 1'-0"

Note:
Refer to Drainage Detail Sheet for Additional Underdrains Adjacent to Bridge.

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES RW303-04 OF RW303-05

PLOT DATE: November 08, 2017 6:12:21 PM JMIGUS

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AMERICAN STRUCTUREPOINT, Inc.
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Highland, IN 46322
www.structurepoint.com

ISSUE	DATE	DESCRIPTION
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NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

DYER TO HAMMOND, INDIANA

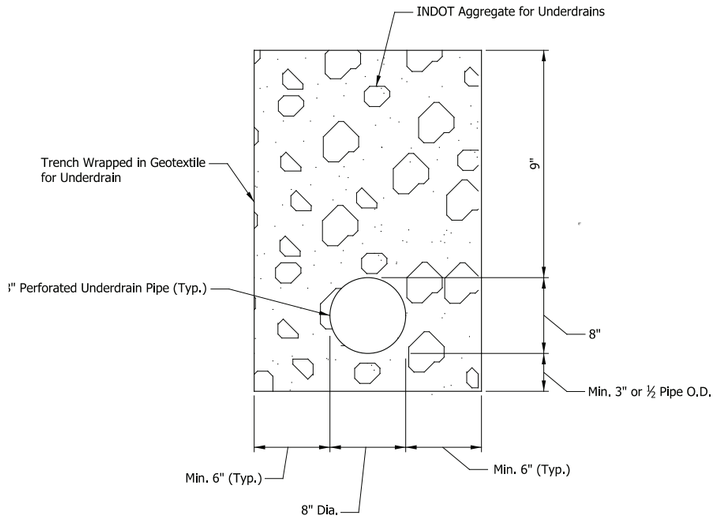
DESIGNED:	ASP-CAK
DRAWN:	ASP-CAK
CHECKED:	ASP-GAL
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

RETAINING WALLS 303W & 303E DRAINAGE PLAN

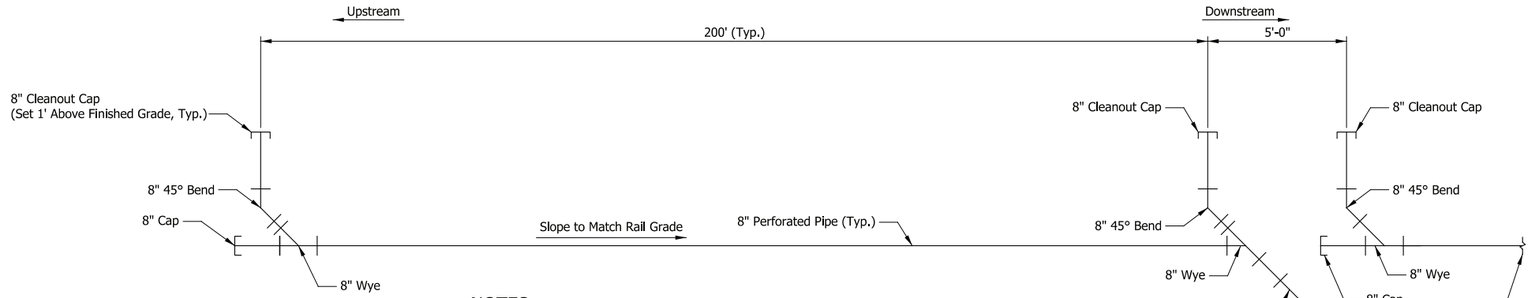
FILENAME	SHT_WL_ST_RW303_DrainPlan_01.dgn
SCALE	AS NOTED

SHEET **73 OF 218**



TYPICAL UNDERDRAIN SECTION

Scale: ½" = 1'-0"

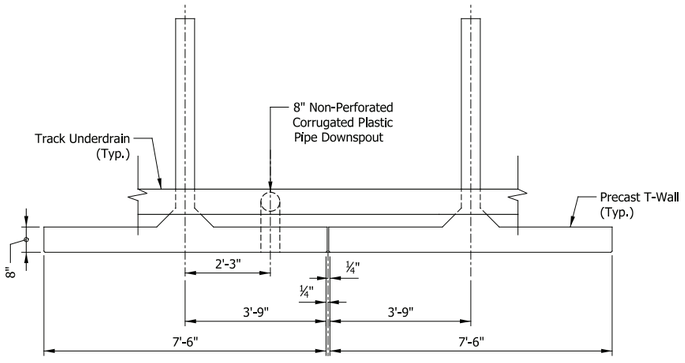


NOTES

1. Provide Underdrain As Shown In Retaining Wall Typical Section Detail and Retaining Wall Drainage Plans. At Downstream Limits Of Wall, Daylight Underdrain To Side Ditch With INDOT Outlet Protector, Type 2 And Rodent Screen.
2. All Fittings, Cleanout Piping, and Vertical Piping Shall Be Solid Wall.
3. Select Locations at Low Points in Rail Underdrain Profile May Include One Outlet Serving Underdrain Upstream in Both Directions. Provide Additional Fittings as Required. See Plan View for Locations.
4. Outlet Station Location in Plan View are Approximate. Final Constructed Outlet Stations / Wall Penetrations shall Occur at Locations Shown per Typical Wall Penetration Detail.

TYPICAL TRACK UNDERDRAIN SCHEMATIC AT RETAINING WALLS

Scale: Not to Scale

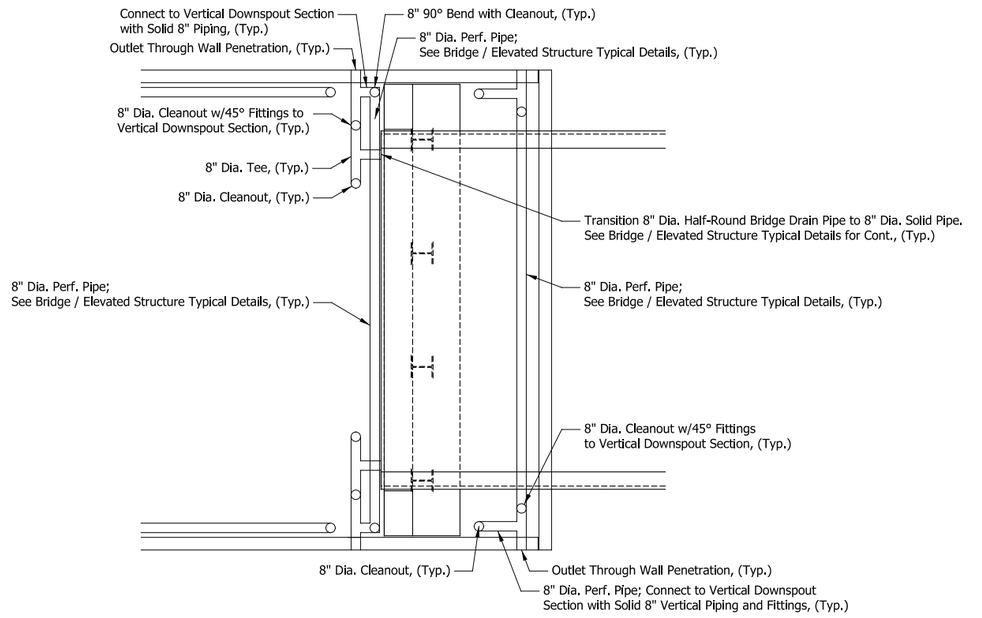


TYPICAL WALL PENETRATION DETAIL

Scale: ½" = 1'-0"

	Outlet Invert	
Outlet Station	Right	Left
3331+81	619.1	615.5
3333+81	619.4	
3333+87		618.2
3335+81	618.9	618.0
3337+05	619.0	
3337+36		618.4
3339+57		615.8

UNDERDRAIN OUTLET ELEVATION SUMMARY TABLE



TYPICAL UNDERDRAIN PLAN DETAIL AT RETAINING WALL INTERFACE WITH BRIDGE OR ELEVATED STRUCTURE

Scale: Not to Scale

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES RW303-05 OF RW303-05

PLOT DATE: November 08, 2017 6:12:25 PM JMIGUS

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ISSUE	DATE	DESCRIPTION
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NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

WEST LAKE CORRIDOR
DYER TO HAMMOND, INDIANA

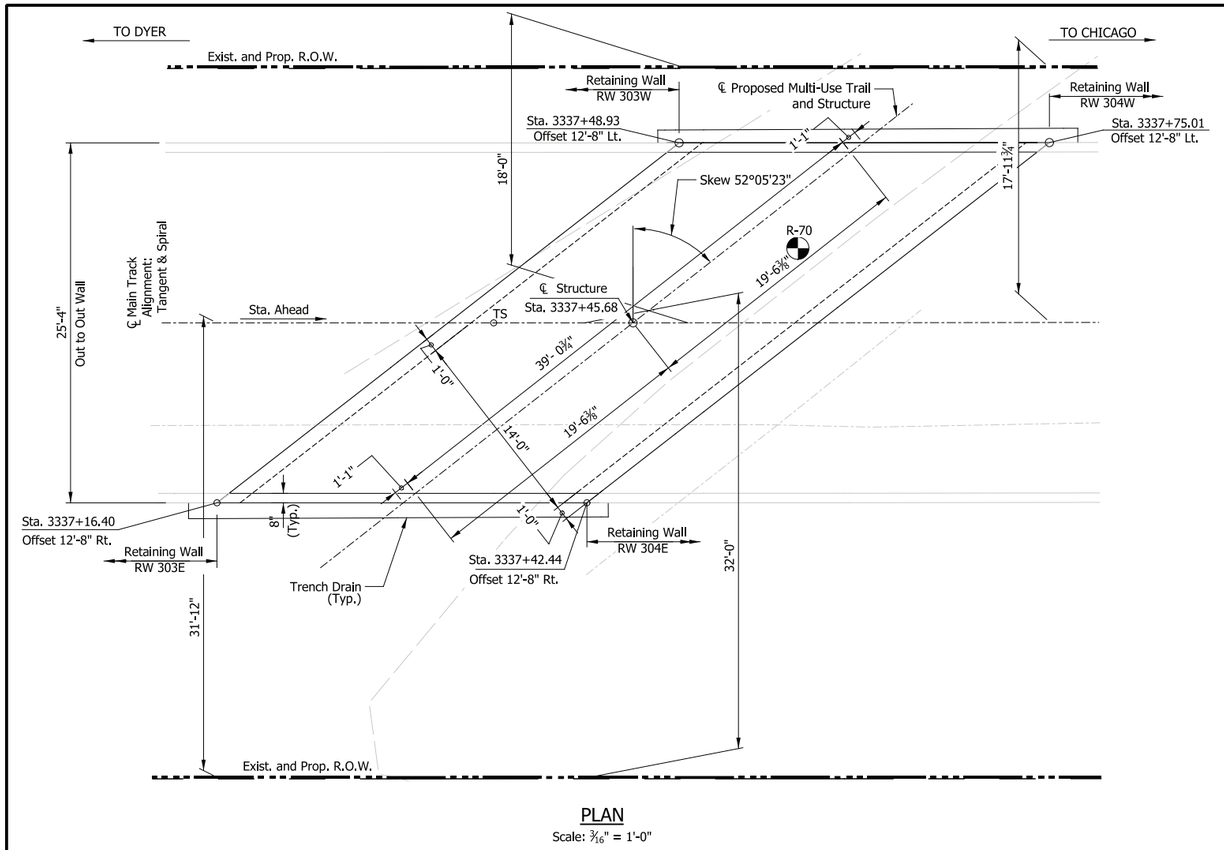
DESIGNED:	ASP-CAK
DRAWN:	ASP-CAK
CHECKED:	ASP-GAL
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

RETAINING WALLS 303W & 303E DRAINAGE DETAILS

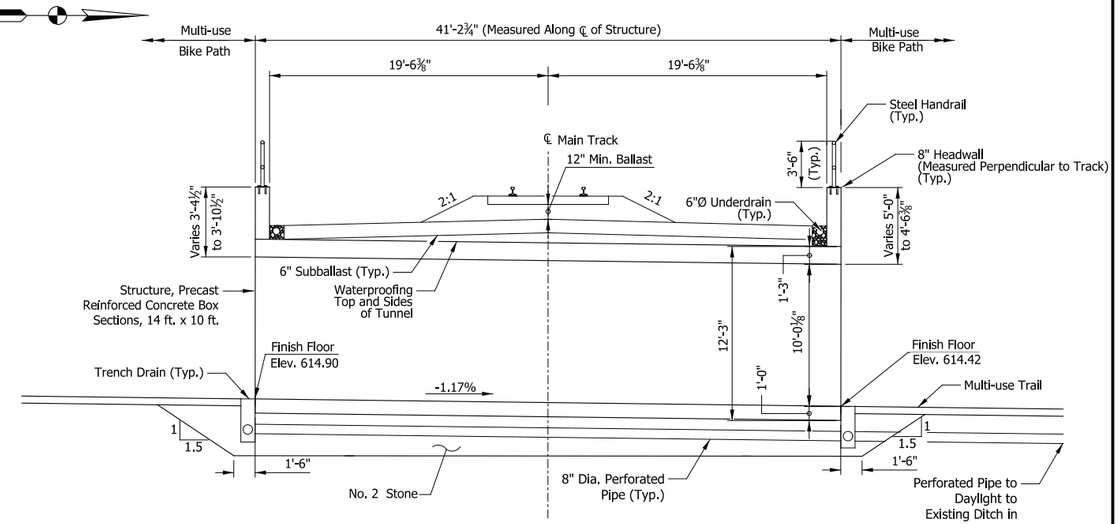
FILENAME	SHT_WL_ST_RW303_DrainDet_01.dgn
SCALE	AS NOTED

SHEET **74 OF 218**



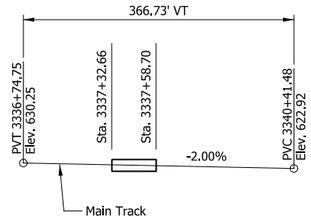
PLAN

Scale: 3/16" = 1'-0"



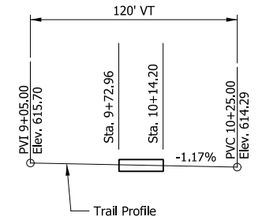
SECTION ALONG ℄ OF CULVERT

Scale: 3/16" = 1'-0"



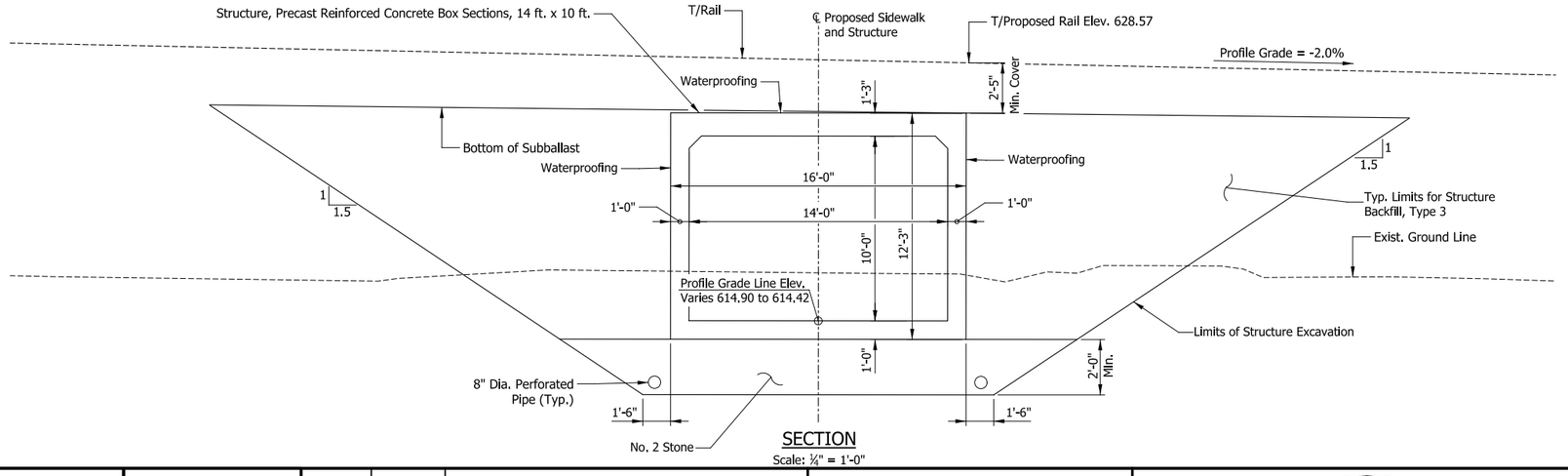
TOP OF RAIL PROFILE

Not to Scale



MULTI-USE TRAIL PROFILE

Not to Scale



SECTION

Scale: ¼" = 1'-0"

DESIGN DATA

SPECIFICATIONS:
American Railway Engineering and Maintenance-of-Way Association (A.R.E.M.A.), Manual for Railway Engineering, 2016, Chapter 8 and 15.

LIVE LOADS:
Cooper E-50 and Ballast Train per Structural Design Criteria

DEAD LOADS:
Maximum Cover = 42 inches

DESIGN STRESSES:
Steel: fy = 50,000 psi (ASTM A709 Gr 50)
Reinforcing: fy = 60,000 psi (ASTM A615)
Concrete: f'c = 4,000 psi (Min.)

NOTES

1. For track Geometry, see Track Plans

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES PT401-01 OF PT401-01

PLOT DATE: November 08, 2017 6:12:38 PM JMIGUS

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DLZ Indiana, LLC
2211 E. Jefferson Boulevard
South Bend, IN 46615
www.dlz.com

ISSUE	DATE	DESCRIPTION
.	.	.

NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

DYER TO HAMMOND, INDIANA

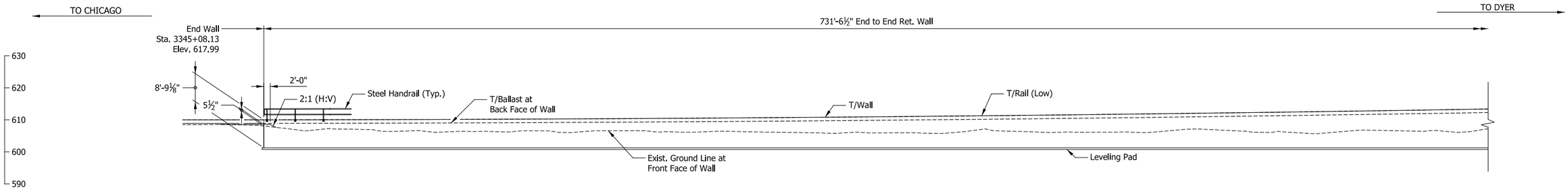
DESIGNED:	DLZ-NTA
DRAWN:	DLZ-NTA
CHECKED:	DLZ-MAK
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

PEDESTRIAN TUNNEL 401 FOR PENNSY GREENWAY GENERAL PLAN & SECTIONS

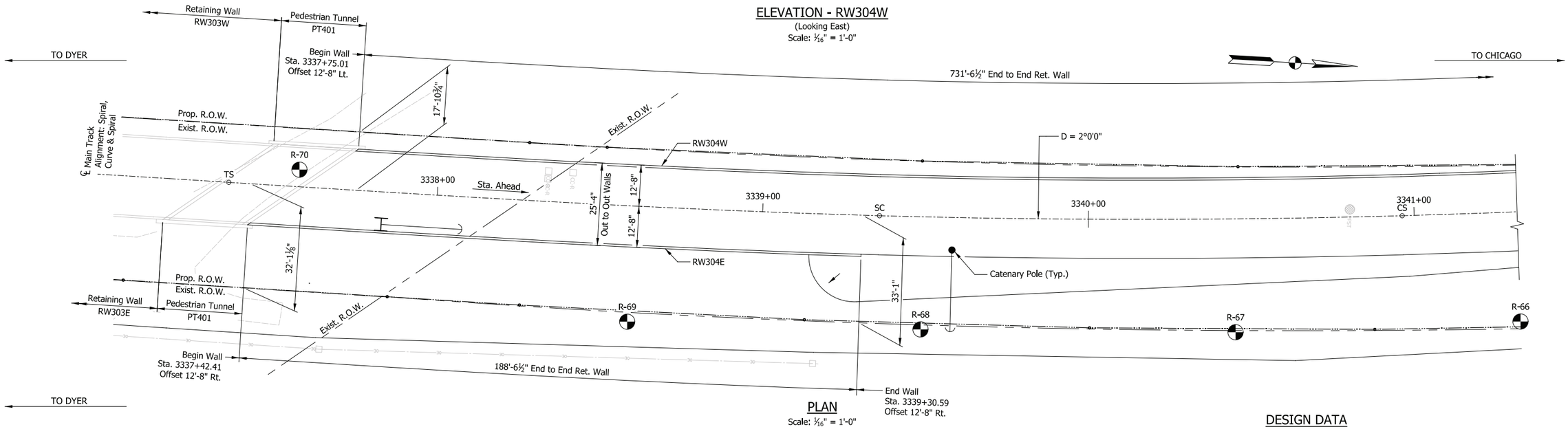
FILENAME	SHT_WL_ST_PT401_GenPlan_01.dgn
SCALE	AS NOTED

SHEET **75 OF 218**



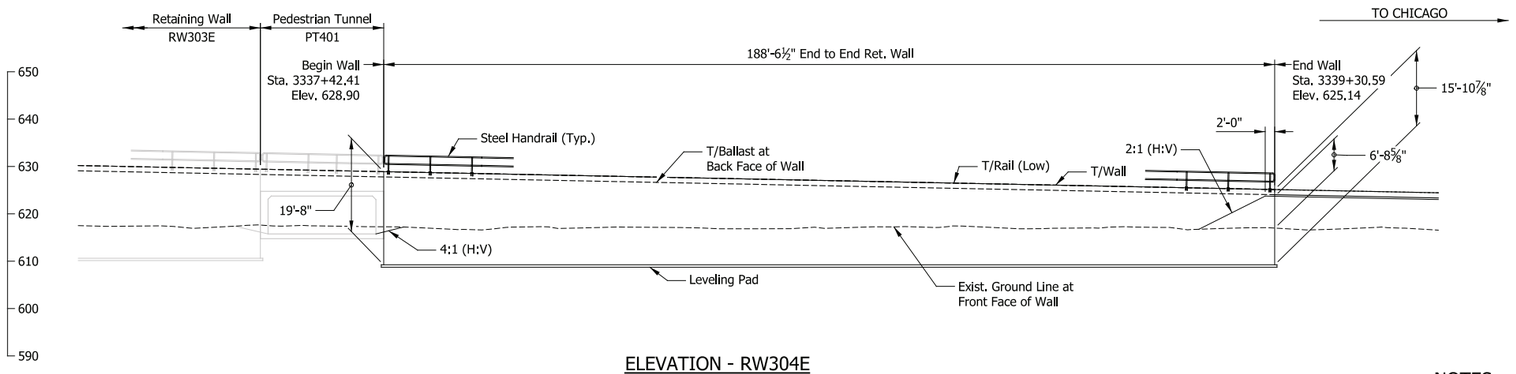
ELEVATION - RW304W

(Looking East)
Scale: 1/16" = 1'-0"



PLAN

Scale: 1/16" = 1'-0"



ELEVATION - RW304E

(Looking West)
Scale: 1/16" = 1'-0"

DESIGN DATA

SPECIFICATIONS:
American Railway Engineering and Maintenance-of-Way Association (A.R.E.M.A.), Manual for Railway Engineering, 2016, Chapter 8 and 15.

LIVE LOADS:
Cooper E-50 and Ballast Train per Structural Design Criteria

DESIGN STRESSES:
Steel: fy = 50,000 psi (ASTM A709 Gr 50)
Reinforcing: fy = 60,000 psi (ASTM A615)
Concrete: f'c = 4,000 psi (Min.)

SHEET INDEX

NOTES

1. For track geometry, see Track Plans.
2. For clarity Catenary Poles and associated infrastructure not shown in elevation views. For details, see System Plans.

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES RW304-01 OF RW304-05

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Lochmueller Group
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ISSUE	DATE	DESCRIPTION

NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

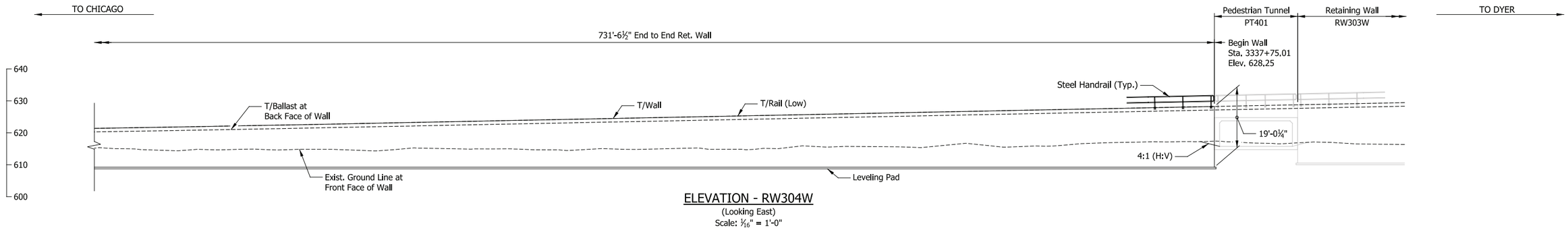
DYER TO HAMMOND, INDIANA

DESIGNED:	LOCH-EJG
DRAWN:	LOCH-DJG
CHECKED:	LOCH-JLH
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

RETAINING WALLS 304W & 304E
GENERAL PLAN & ELEVATION (1 of 2)

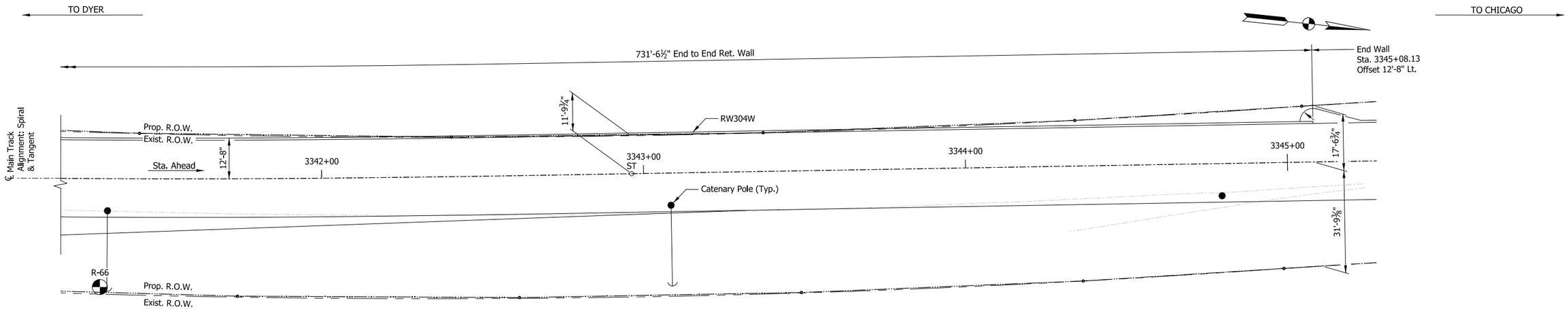
FILENAME	SHT_WL_ST_RW304_GenPlan_01.dgn	SHEET
SCALE	AS NOTED	76 OF 218



ELEVATION - RW304W

(Looking East)

Scale: 1/16" = 1'-0"



PLAN

Scale: 1/16" = 1'-0"

NOTES

1. For track geometry, see Track Plans.
2. For clarity Catenary Poles and associated infrastructure not shown in elevation views. For details, see System Plans.

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES RW304-02 OF RW304-05

PLOT DATE: November 08, 2017 6:13:08 PM JMIGUS

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ISSUE	DATE	DESCRIPTION
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NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

WEST LAKE CORRIDOR

DYER TO HAMMOND, INDIANA

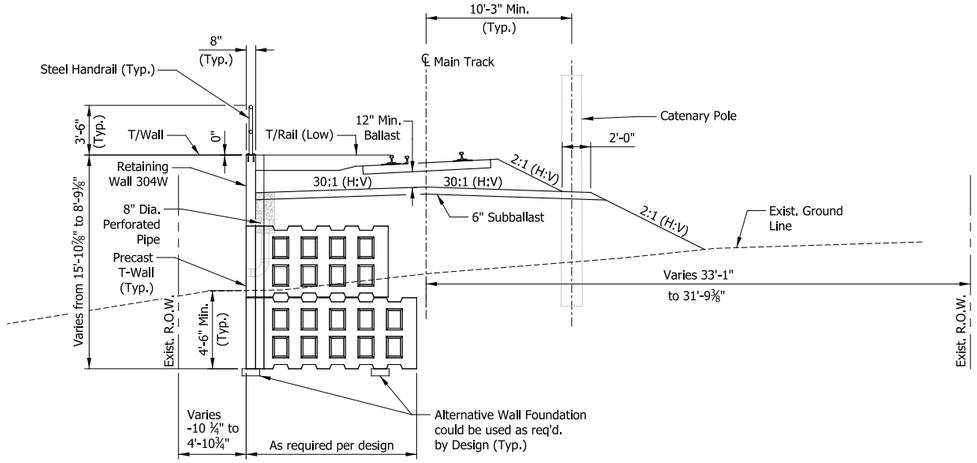
DESIGNED:	LOCH-EJG
DRAWN:	LOCH-DJG
CHECKED:	LOCH-JLH
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

RETAINING WALLS 304W & 304E
GENERAL PLAN & ELEVATION (2 of 2)

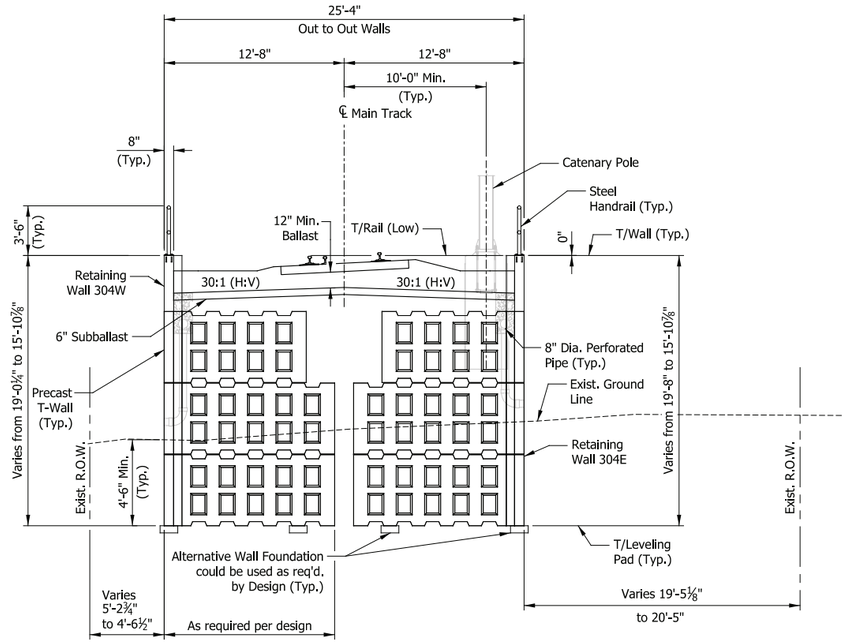
FILENAME	SHT_WL_ST_RW304_GenPlan_02.dgn
SCALE	AS NOTED

SHEET **77 OF 218**



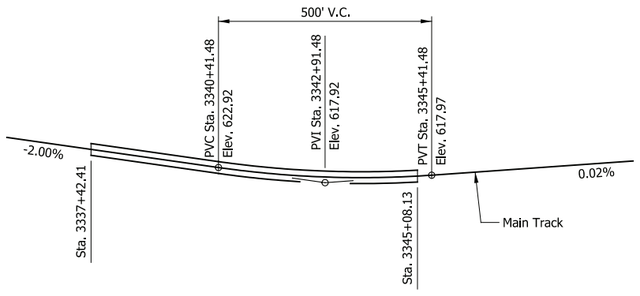
TYPICAL SINGLE WALL SECTION

(Looking Upstation)
Scale: 3/16" = 1'-0"



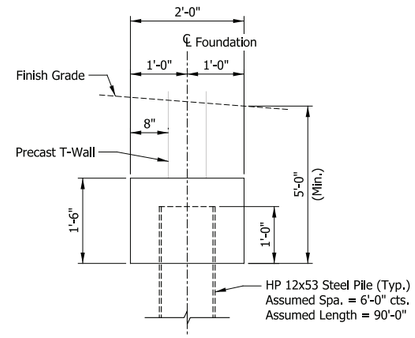
TYPICAL DOUBLE WALL SECTION

(Looking Upstation)
Scale: 3/16" = 1'-0"



TOP OF RAIL PROFILE

Not to Scale



ALTERNATIVE WALL FOUNDATION

Scale: ¾" = 1'-0"

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES RW304-03 OF RW304-05

PLOT DATE: November 08, 2017 6:13:15 PM JMIGUS

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ISSUE	DATE	DESCRIPTION
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NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

DYER TO HAMMOND, INDIANA

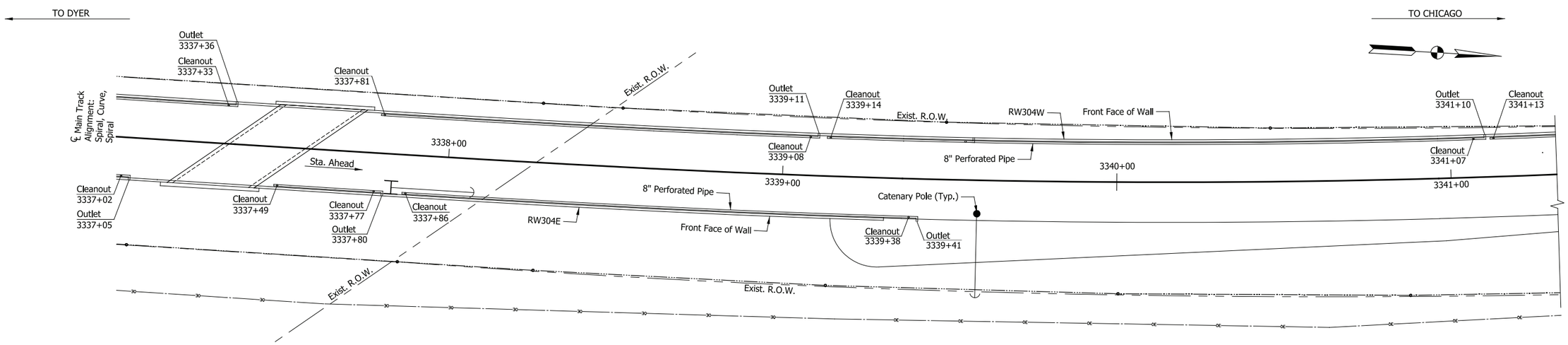
DESIGNED:	LOCH-EJG
DRAWN:	LOCH-DJG
CHECKED:	LOCH-JLH
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

RETAINING WALLS 304W & 304E
TYPICAL DETAILS

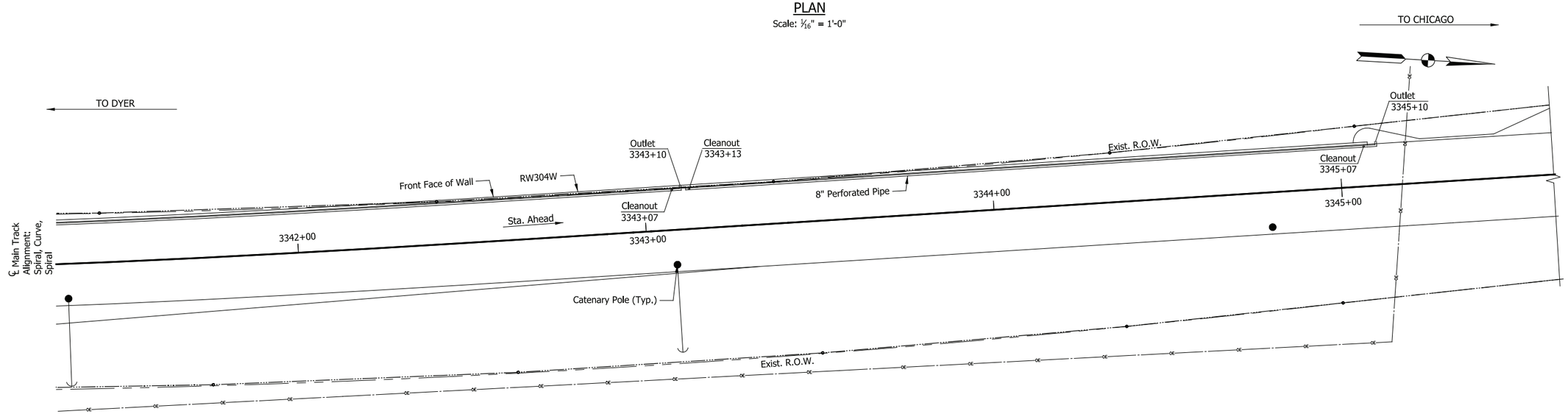
FILENAME	SHT_WL_ST_RW304_TypDet_01.dgn
SCALE	AS NOTED

SHEET **78 OF 218**



PLAN

Scale: 1/16" = 1'-0"



PLAN

Scale: 1/16" = 1'-0"

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES RW304-04 OF RW304-05

PLOT DATE: November 08, 2017 6:13:27 PM JMIGUS

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www.structurepoint.com

ISSUE	DATE	DESCRIPTION

NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

DYER TO HAMMOND, INDIANA

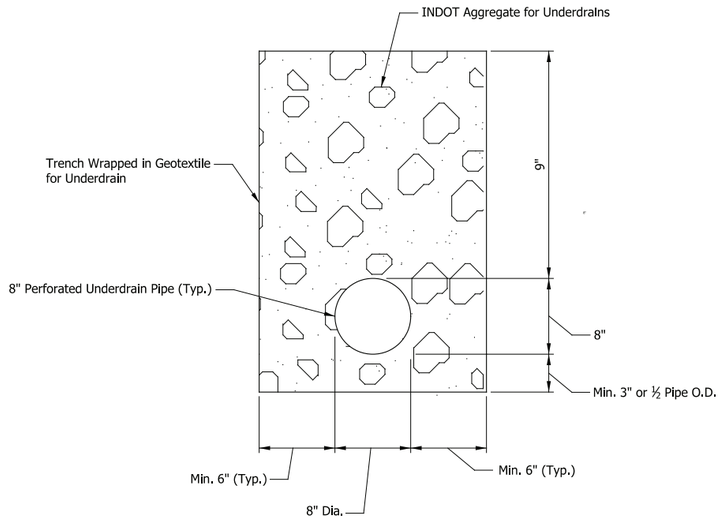
DESIGNED:	ASP-CAK
DRAWN:	ASP-CAK
CHECKED:	ASP-GAL
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

RETAINING WALLS 304W & 304E
DRAINAGE PLAN

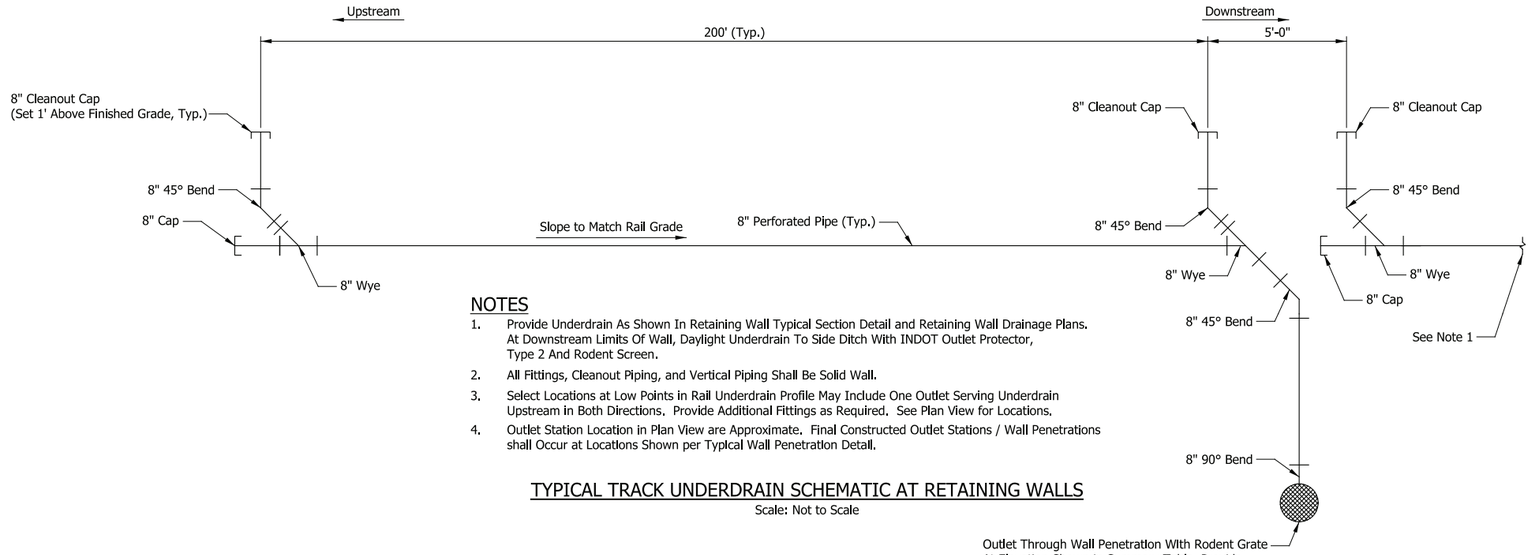
FILENAME	SHT_WL_ST_RW304_DrainPlan_01.dgn
SCALE	AS NOTED

SHEET **79 OF 218**



TYPICAL UNDERDRAIN SECTION

Scale: ½" = 1'-0"

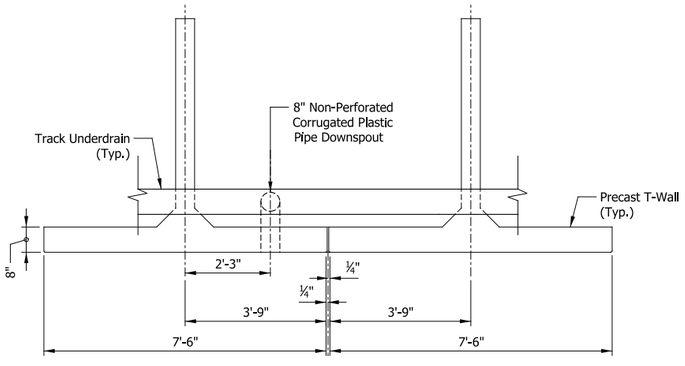


NOTES

1. Provide Underdrain As Shown In Retaining Wall Typical Section Detail and Retaining Wall Drainage Plans. At Downstream Limits Of Wall, Daylight Underdrain To Side Ditch With INDOT Outlet Protector, Type 2 And Rodent Screen.
2. All Fittings, Cleanout Piping, and Vertical Piping Shall Be Solid Wall.
3. Select Locations at Low Points in Rail Underdrain Profile May Include One Outlet Serving Underdrain Upstream in Both Directions. Provide Additional Fittings as Required. See Plan View for Locations.
4. Outlet Station Location in Plan View are Approximate. Final Constructed Outlet Stations / Wall Penetrations shall Occur at Locations Shown per Typical Wall Penetration Detail.

TYPICAL TRACK UNDERDRAIN SCHEMATIC AT RETAINING WALLS

Scale: Not to Scale

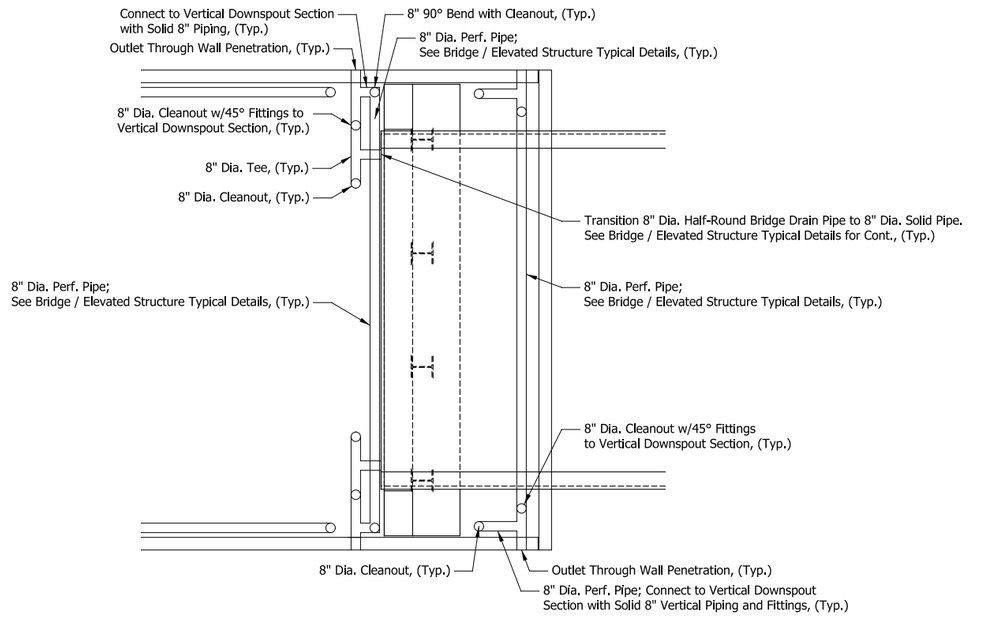


TYPICAL WALL PENETRATION DETAIL

Scale: ½" = 1'-0"

	Outlet Invert	
Outlet Station	Right	Left
3337+80	618.9	
3339+11		617.1
3339+41	618.7	
3341+10		616.7
3343+10		615.9
3345+10		618.3

UNDERDRAIN OUTLET ELEVATION SUMMARY TABLE



TYPICAL UNDERDRAIN PLAN DETAIL AT RETAINING WALL INTERFACE WITH BRIDGE OR ELEVATED STRUCTURE

Scale: Not to Scale

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES RW304-05 OF RW304-05

PLOT DATE: November 08, 2017 6:13:32 PM JMIGUS

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ISSUE	DATE	DESCRIPTION
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NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

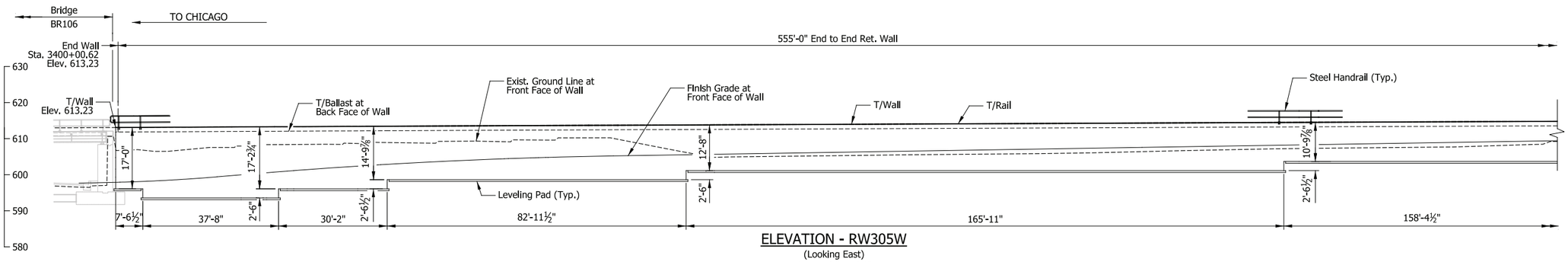
DYER TO HAMMOND, INDIANA

DESIGNED:	ASP-CAK
DRAWN:	ASP-CAK
CHECKED:	ASP-GAL
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

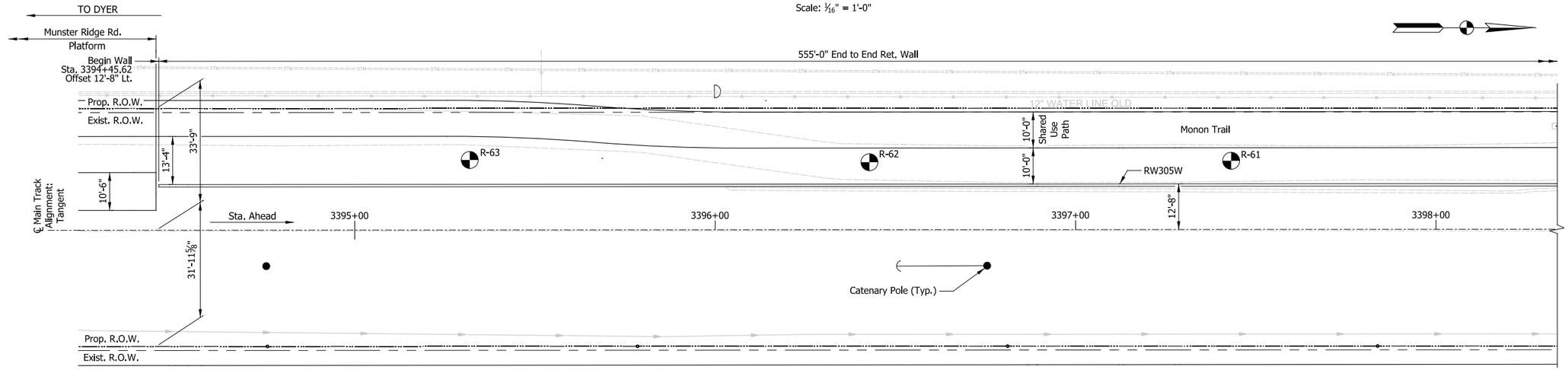
RETAINING WALLS 304W & 304E DRAINAGE DETAILS

FILENAME	SHT_WL_ST_RW304_DrainDet_01.dgn	SHEET
SCALE	AS NOTED	80 OF 218



ELEVATION - RW305W

(Looking East)
Scale: 1/16" = 1'-0"



PLAN

Scale: 1/16" = 1'-0"

DESIGN DATA

SPECIFICATIONS:
American Railway Engineering and Maintenance-of-Way Association (A.R.E.M.A.), Manual for Railway Engineering, 2016, Chapter 8 and 15.

LIVE LOADS:
Cooper E-50 and Ballast Train per Structural Design Criteria

DESIGN STRESSES:
Steel: fy = 50,000 psi (ASTM A709 Gr 50)
Reinforcing: fy = 60,000 psi (ASTM A615)
Concrete: f'c = 4,000 psi (Min.)

SHEET INDEX

NOTES

1. For track geometry, see Track Plans.
2. For clarity Catenary Poles and associated infrastructure not shown in elevation views. For details, see System Plans.
3. Field Verify Limits and Depth of Existing Footing at Broadmoor Bridge.

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES RW305-01 OF RW305-05

PLOT DATE: November 08, 2017 6:13:42 PM JMIGUS

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ISSUE	DATE	DESCRIPTION

NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

WEST LAKE CORRIDOR
DYER TO HAMMOND, INDIANA

DESIGNED:	DLZ-JFM
DRAWN:	DLZ-JLM
CHECKED:	DLZ-CAG
DATE:	07/21/17

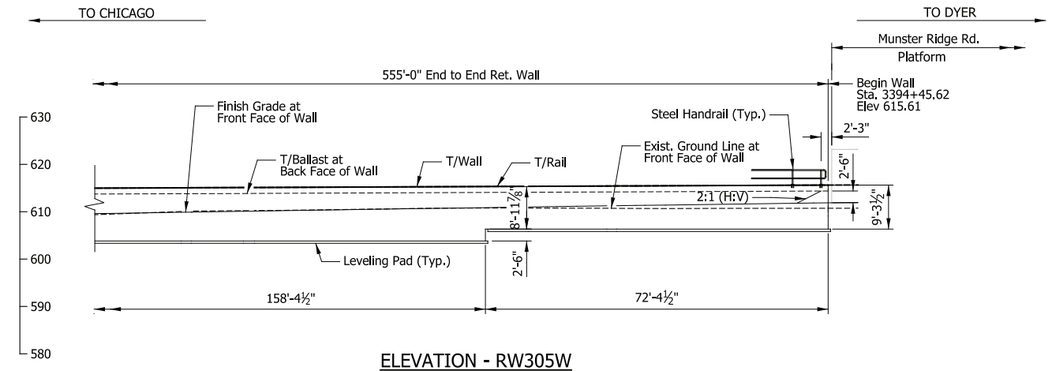
NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

RETAINING WALL 305

GENERAL PLAN & ELEVATION (1 OF 2)

FILENAME	SHT_WL_ST_RW305_GenPlan_01.dgn
SCALE	AS NOTED

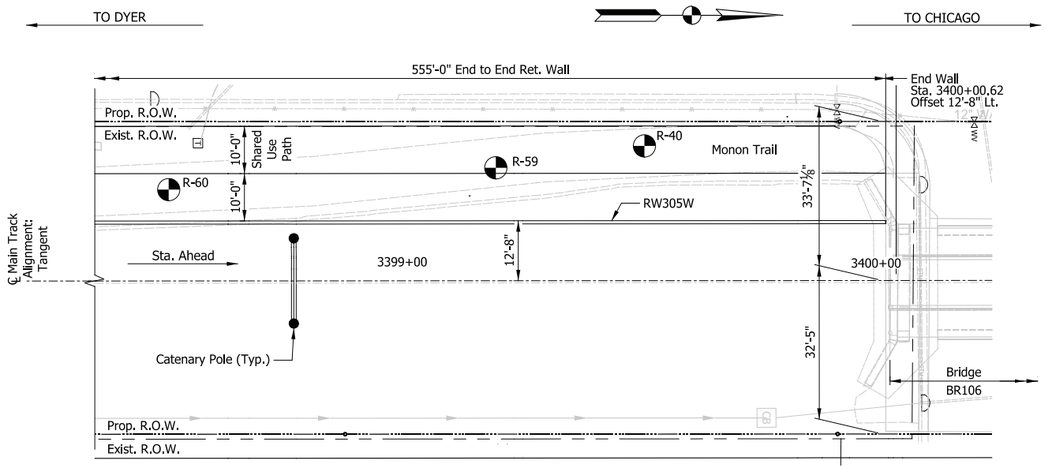
SHEET **81 OF 218**



ELEVATION - RW305W

(Looking East)

Scale: 1/16" = 1'-0"



PLAN

Scale: 1/16" = 1'-0"

NOTES

1. For track geometry, see Track Plans.
2. For clarity Catenary Poles and associated infrastructure not shown in elevation views. For details, see System Plans.
3. Field Verify Limits and Depth of Existing Footing at Broadmoor Bridge.

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES RW305-02 OF RW305-05

PLOT DATE: November 08, 2017 6:13:50 PM JMIGUS

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ISSUE	DATE	DESCRIPTION
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NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

WEST LAKE CORRIDOR

DYER TO HAMMOND, INDIANA

DESIGNED:	DLZ-JFM
DRAWN:	DLZ-JLM
CHECKED:	DLZ-CAG
DATE:	07/21/17

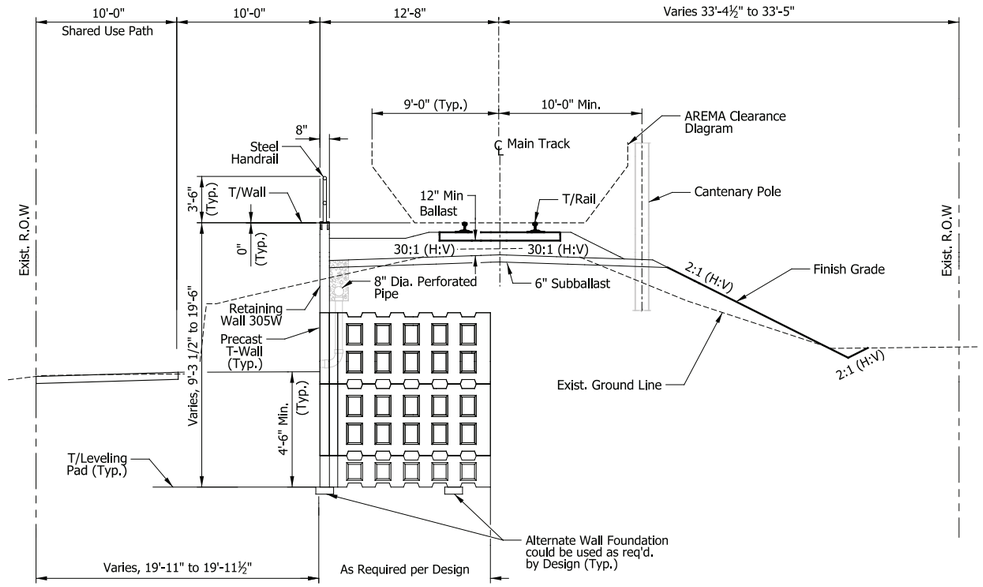
NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

RETAINING WALL 305

GENERAL PLAN & ELEVATION (2 OF 2)

FILENAME	SHT_WL_ST_RW305_GenPlan_02.dgn
SCALE	AS NOTED

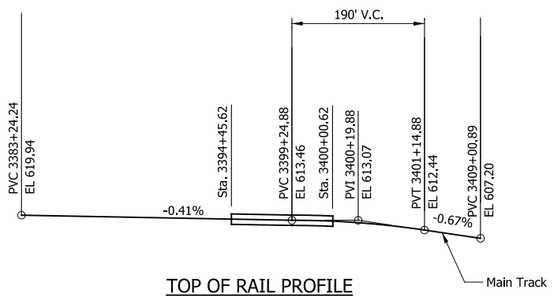
SHEET **82 OF 218**



TYPICAL SINGLE WALL SECTION

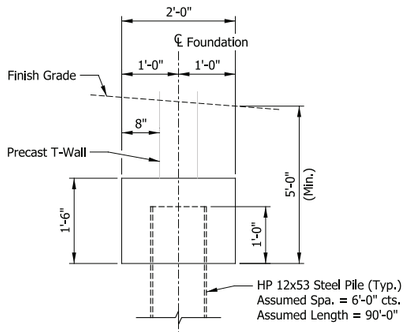
(Looking Upstation)

Scale: 3/16" = 1'-0"



TOP OF RAIL PROFILE

Not to Scale



ALTERNATIVE WALL FOUNDATION

Scale: ¾" = 1'-0"

PLOT DATE: November 08, 2017 6:13:56 PM JMIGUS

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES RW305-03 OF RW305-05

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ISSUE	DATE	DESCRIPTION
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NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

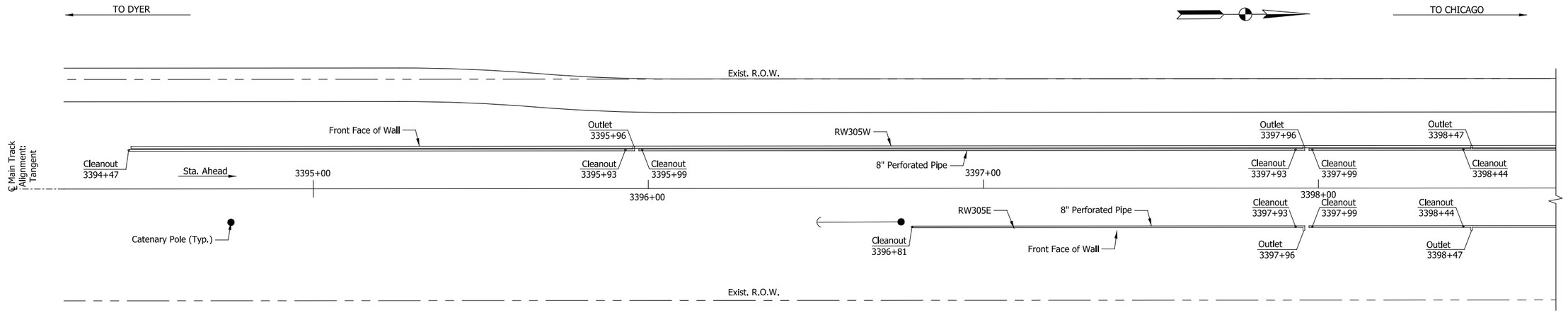
DYER TO HAMMOND, INDIANA

DESIGNED:	DLZ-JFM
DRAWN:	DLZ-JLM
CHECKED:	DLZ-CAG
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

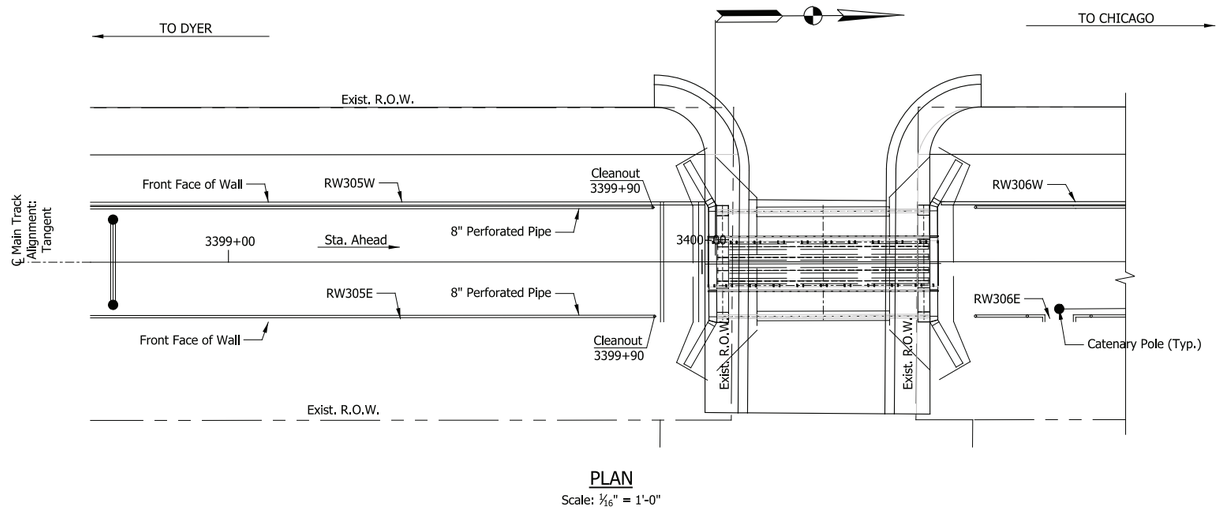
RETAINING WALL 305
TYPICAL DETAILS

FILENAME	SHT_WL_ST_RW305_TypDet_01.dgn	SHEET
SCALE	AS NOTED	83 OF 218



PLAN

Scale: 1/16" = 1'-0"



PLAN

Scale: 1/16" = 1'-0"

Note:
Refer to Drainage Detail Sheet for Additional Underdrains Adjacent to Bridge.

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES RW305-04 OF RW305-05

PLOT DATE: November 08, 2017 6:14:05 PM JMIGUS

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33 East Highway 12
Chesterton, Indiana 46304

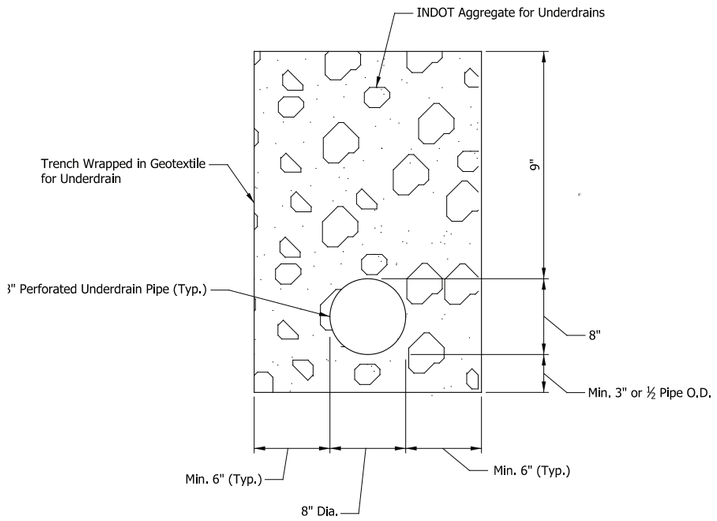
DYER TO HAMMOND, INDIANA

DESIGNED:	ASP-CAK
DRAWN:	ASP-CAK
CHECKED:	ASP-GAL
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

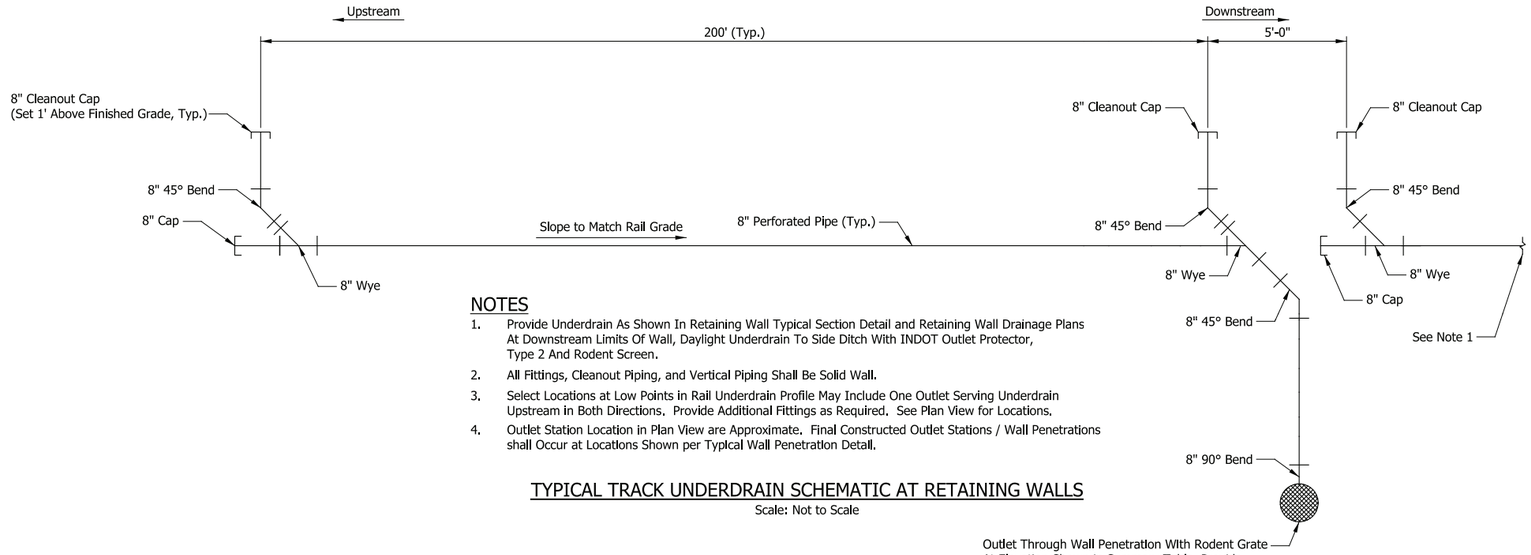
RETAINING WALL 305
DRAINAGE PLAN

FILENAME	SHT_WL_ST_RW305_DrainPlan_01.dgn	SHEET
SCALE	AS NOTED	**84 OF 218**



TYPICAL UNDERDRAIN SECTION

Scale: ½" = 1'-0"

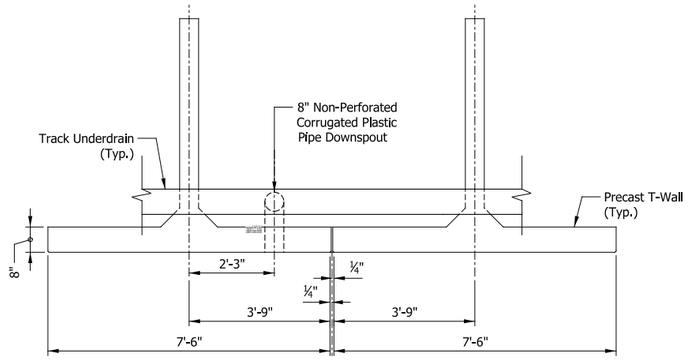


NOTES

1. Provide Underdrain As Shown In Retaining Wall Typical Section Detail and Retaining Wall Drainage Plans At Downstream Limits Of Wall, Daylight Underdrain To Side Ditch With INDOT Outlet Protector, Type 2 And Rodent Screen.
2. All Fittings, Cleanout Piping, and Vertical Piping Shall Be Solid Wall.
3. Select Locations at Low Points in Rail Underdrain Profile May Include One Outlet Serving Underdrain Upstream in Both Directions. Provide Additional Fittings as Required. See Plan View for Locations.
4. Outlet Station Location in Plan View are Approximate. Final Constructed Outlet Stations / Wall Penetrations shall Occur at Locations Shown per Typical Wall Penetration Detail.

TYPICAL TRACK UNDERDRAIN SCHEMATIC AT RETAINING WALLS

Scale: Not to Scale

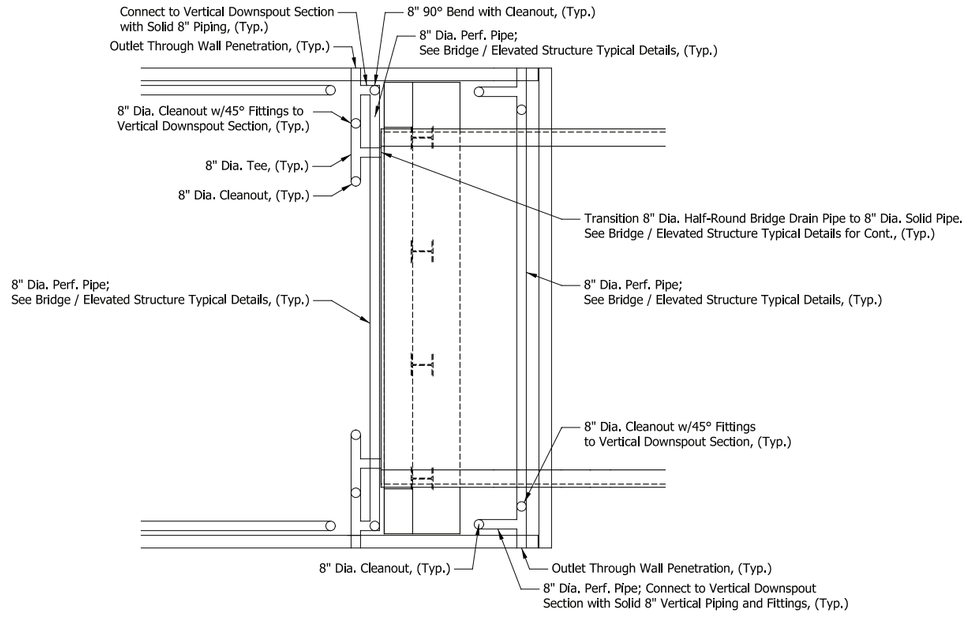


TYPICAL WALL PENETRATION DETAIL

Scale: ½" = 1'-0"

	Outlet Invert	
Outlet Station	Right	Left
3395+96		616.5
3397+96	608.0	609.9
3398+47	607.3	611.4

UNDERDRAIN OUTLET ELEVATION SUMMARY TABLE



TYPICAL UNDERDRAIN PLAN DETAIL AT RETAINING WALL INTERFACE WITH BRIDGE OR ELEVATED STRUCTURE

Scale: Not to Scale

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES RW305-05 OF RW305-05

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AMERICAN STRUCTUREPOINT, Inc.
2809 Highway Ave., Suite B
Highland, IN 46322
www.structurepoint.com

ISSUE	DATE	DESCRIPTION

NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

DYER TO HAMMOND, INDIANA

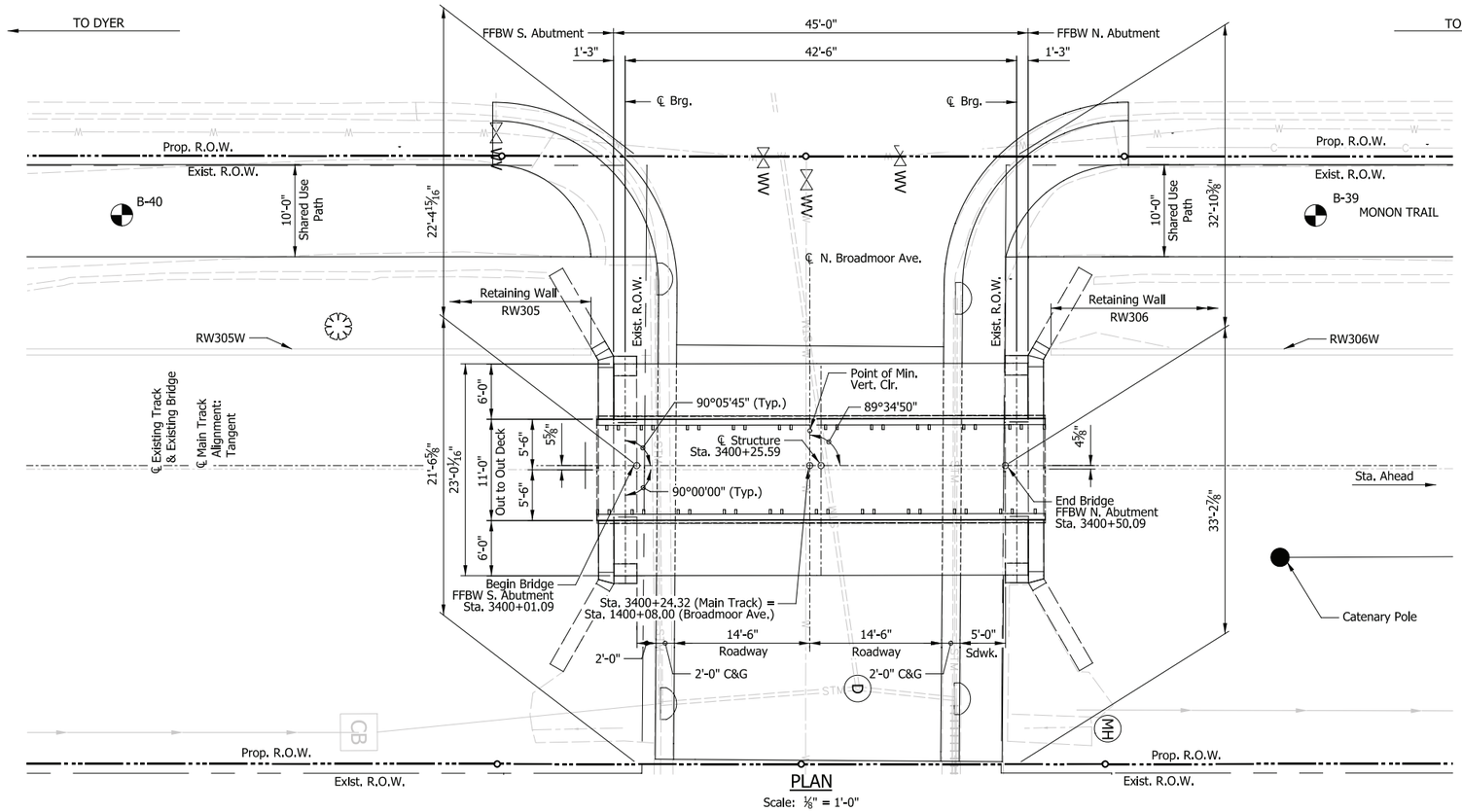
DESIGNED:	ASP-CAK
DRAWN:	ASP-CAK
CHECKED:	ASP-GAL
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

RETAINING WALL 305 DRAINAGE DETAILS

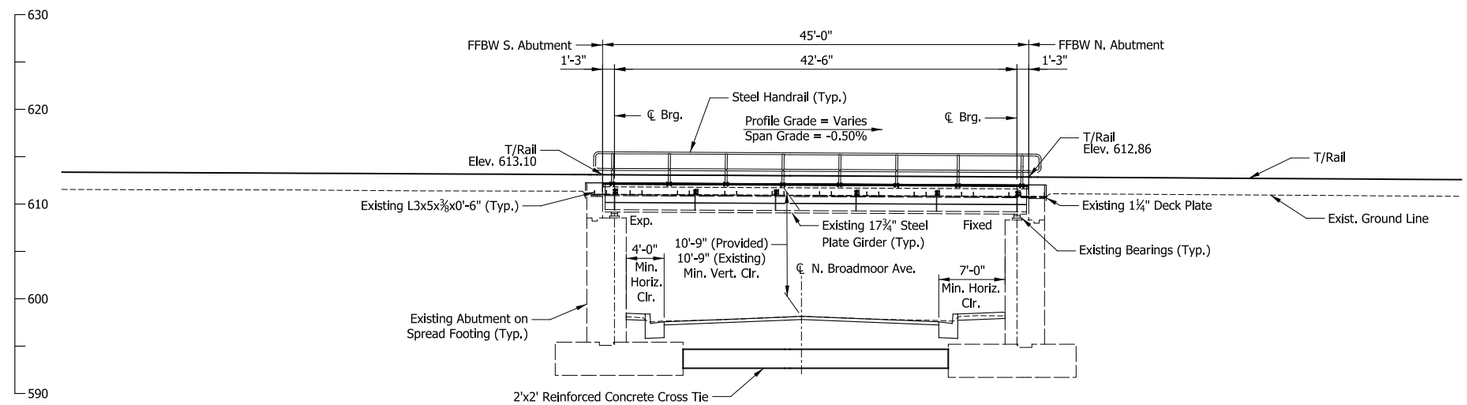
FILENAME	SHT_WL_ST_RW305_DrainDet_01.dgn
SCALE	AS NOTED

SHEET **85 OF 218**



PLAN

Scale: ⅛" = 1'-0"



ELEVATION

Scale: ⅛" = 1'-0"

DESIGN DATA

SPECIFICATIONS ORIGINAL STRUCTURE:
American Railway Engineering Association (A.R.E.A.), Manual of Recommended Practice for Railway Engineering 1968

SPECIFICATIONS:
American Railway Engineering and Maintenance-of-Way Association (A.R.E.M.A.), Manual for Railway Engineering, 2016, Chapter 8 and 15.

LIVE LOADS:
Cooper E-50 and Ballast Train per Structural Design Criteria

DEAD LOADS:
Maximum Ballast Depth = 21" inches (At High End of Span)

DESIGN STRESSES:
Steel: fy = 50,000 psi (ASTM A709 Gr 50)
Reinforcing: fy = 60,000 psi (ASTM A615)
Concrete: f'c = 4,000 psi (Min.)

SHEET INDEX

CONSTRUCTION DEPTH

Rail (115 Lbs)	6 5/8"
Tie Plate	¾"
Tie	7"
Ballast (min.)	8"
Waterproofing	1"
Deck Plate / Top Flange	1¼"
Web	17¾"
Bottom Flange	3"
	45⅜"

NOTES

1. For Track geometry, see Track Plans.

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES BR106-01 OF BR106-05

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ISSUE	DATE	DESCRIPTION

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33 East Highway 12
Chesterton, Indiana 46304

DYER TO HAMMOND, INDIANA

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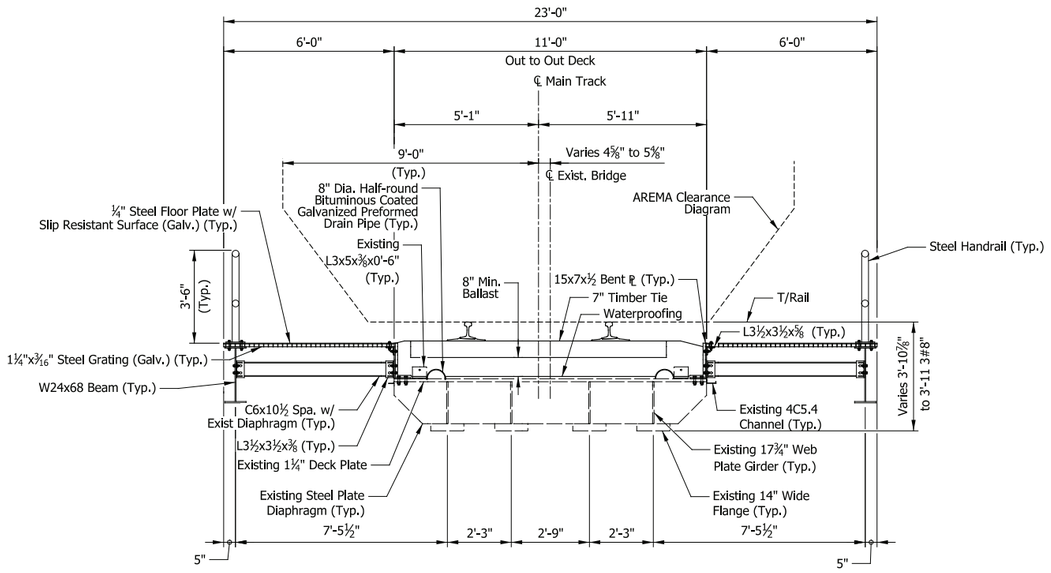
DRAWN:	DLZ-JFM
CHECKED:	DLZ-MAK
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

BRIDGE 106 - NICTD OVER BROADMOOR AVENUE GENERAL PLAN & ELEVATION

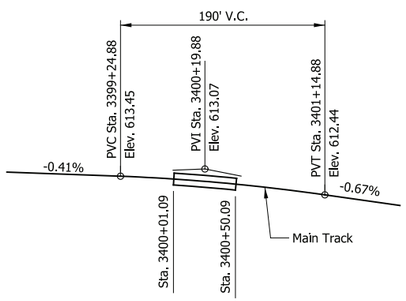
FILENAME	SHT_WL_ST_BR106_GenPlan_01.dgn
SCALE	AS NOTED

SHEET **86 OF 218**



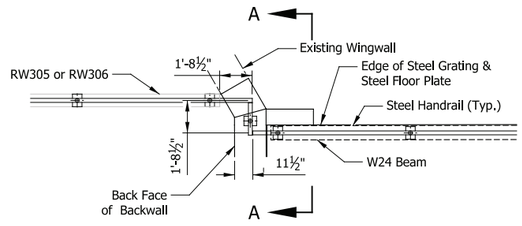
TYPICAL SECTION

Scale: ⅜" = 1'-0"



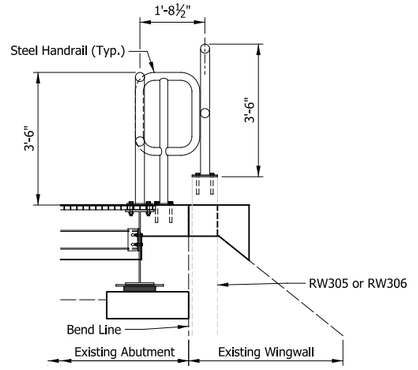
TOP OF RAIL PROFILE

Not to Scale



HANDRAIL LAYOUT AT BRIDGE CORNERS

Scale: ¼" = 1'-0"



VIEW A-A

Scale: ½" = 1'-0"

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CHECKED:	DLZ-MAK
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PRELIMINARY PLANS

NOT FOR CONSTRUCTION

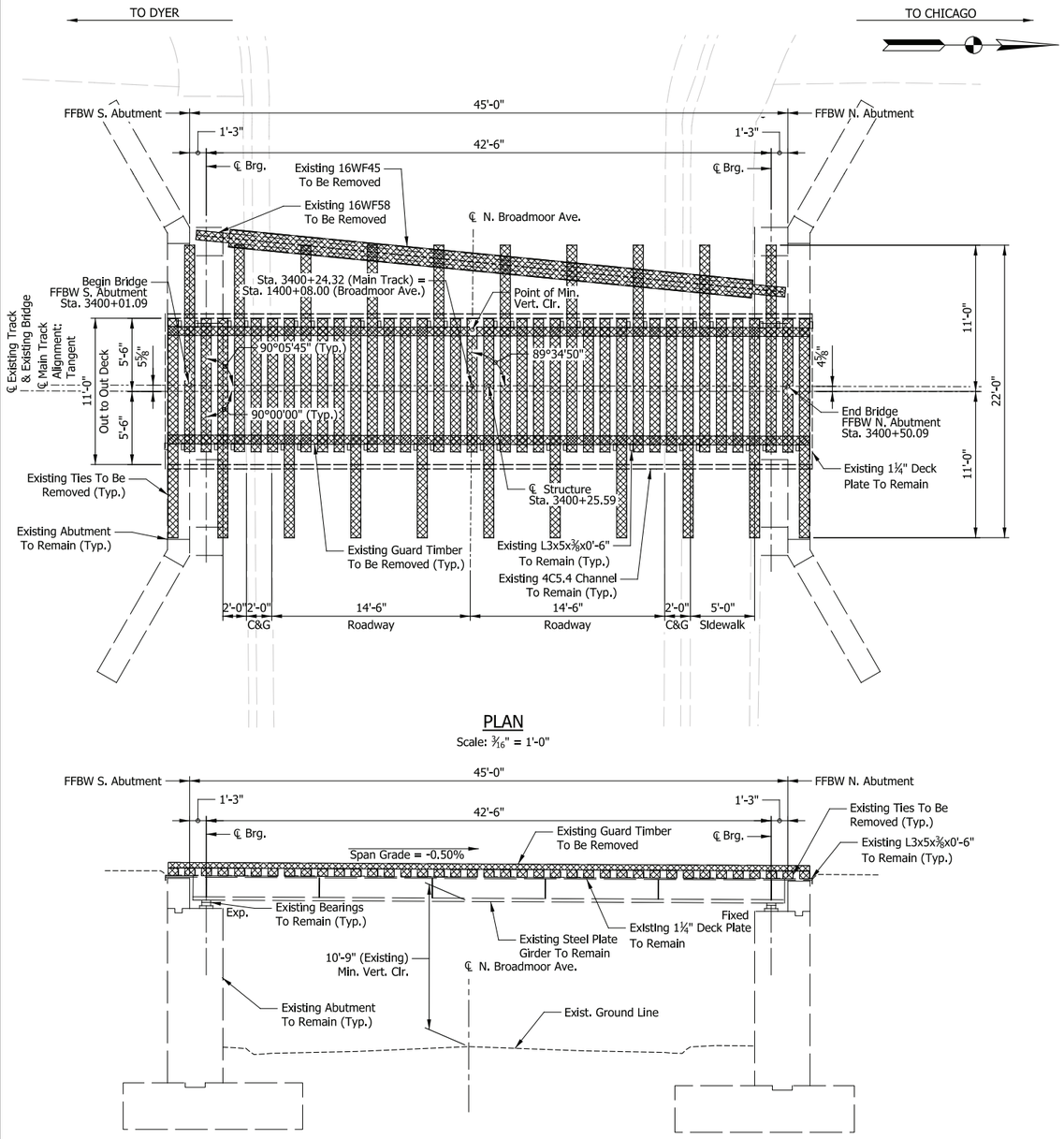
SERIES BR106-02 OF BR106-05

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

BRIDGE 106 - NICTD OVER BROADMOOR AVENUE TYPICAL DETAILS

FILENAME	SHT_WL_ST_BR106_TypDet_01.dgn
SCALE	AS NOTED

SHEET **87 OF 218**

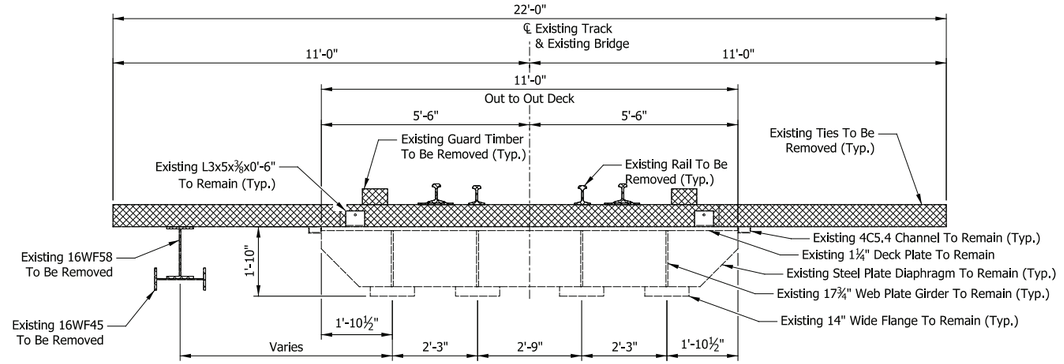


PLAN

Scale: 3/16" = 1'-0"

ELEVATION

Scale: 3/16" = 1'-0"



TYPICAL SECTION

Scale: ½" = 1'-0"

NOTES:

Portion of existing structure to be removed.

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES BR106-03 OF BR106-05

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33 East Highway 12
Chesterton, Indiana 46304

WEST LAKE CORRIDOR

DYER TO HAMMOND, INDIANA

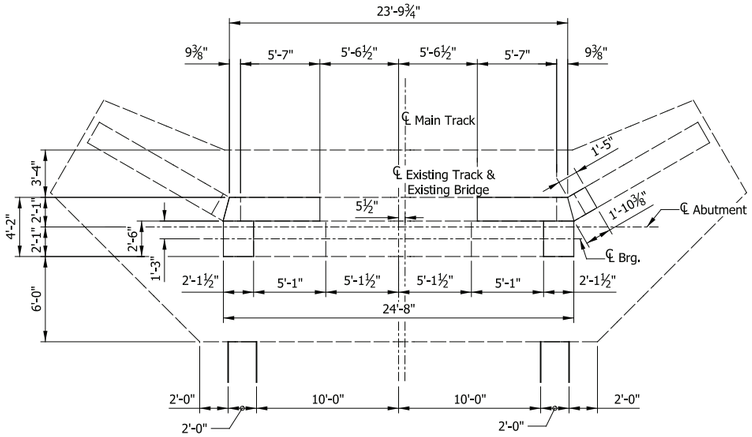
DESIGNED:	DLZ-JFM
DRAWN:	DLZ-JFM
CHECKED:	DLZ-MAK
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

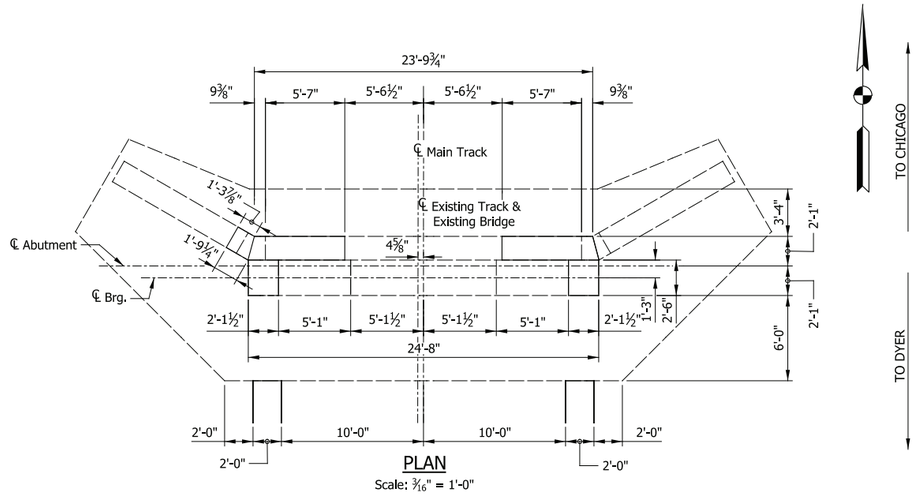
BRIDGE 106 - NICTD OVER BROADMOOR AVENUE DEMOLITION DETAILS

FILENAME	SHT_WL_ST_BR106_DemoDet_01.dgn
SCALE	AS NOTED

SHEET **88 OF 218**



PLAN
Scale: 3/16" = 1'-0"



PLAN
Scale: 3/16" = 1'-0"

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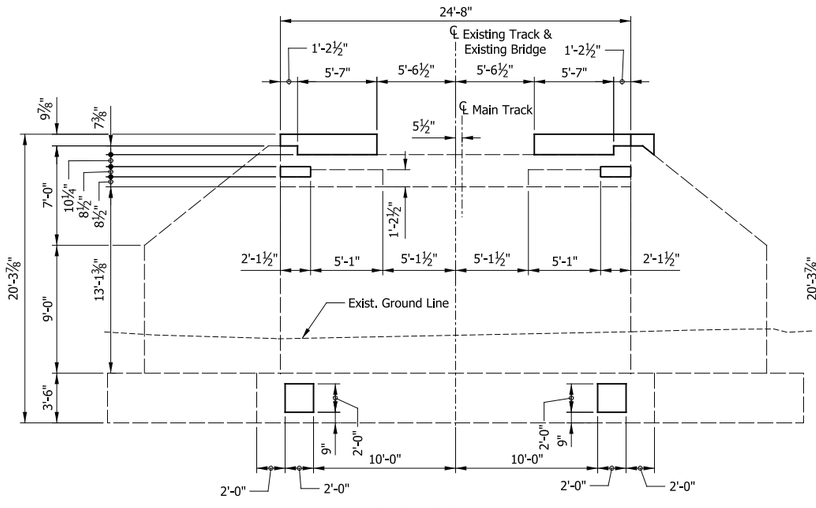
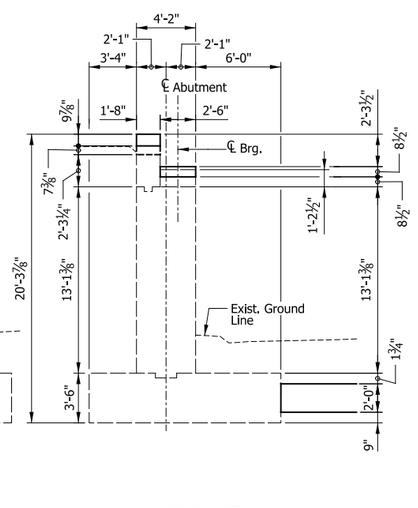
TO CHICAGO

TO DYER

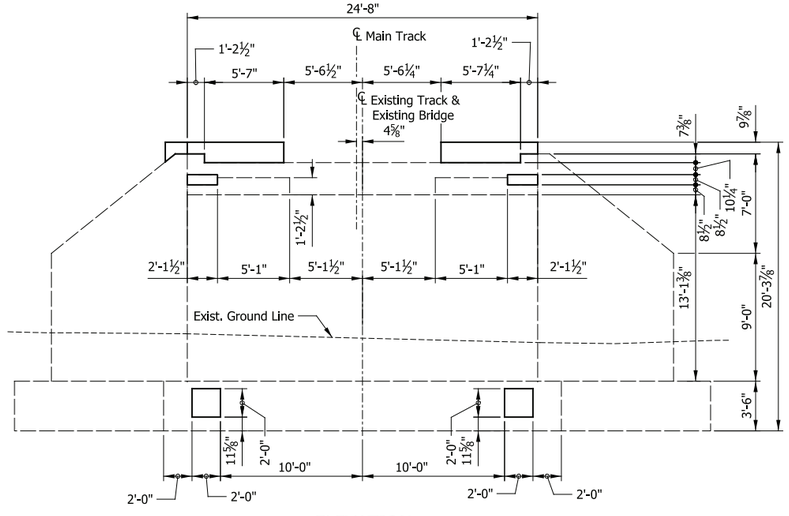


ELEVATION
Scale: 3/16" = 1'-0"

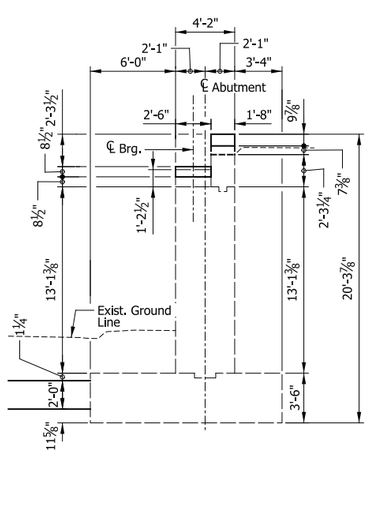


END VIEW
Scale: 3/16" = 1'-0"

SOUTH ABUTMENT



ELEVATION
Scale: 3/16" = 1'-0"



END VIEW
Scale: 3/16" = 1'-0"

NORTH ABUTMENT

PRELIMINARY PLANS

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SERIES BR106-04 OF BR106-05

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WEST LAKE CORRIDOR
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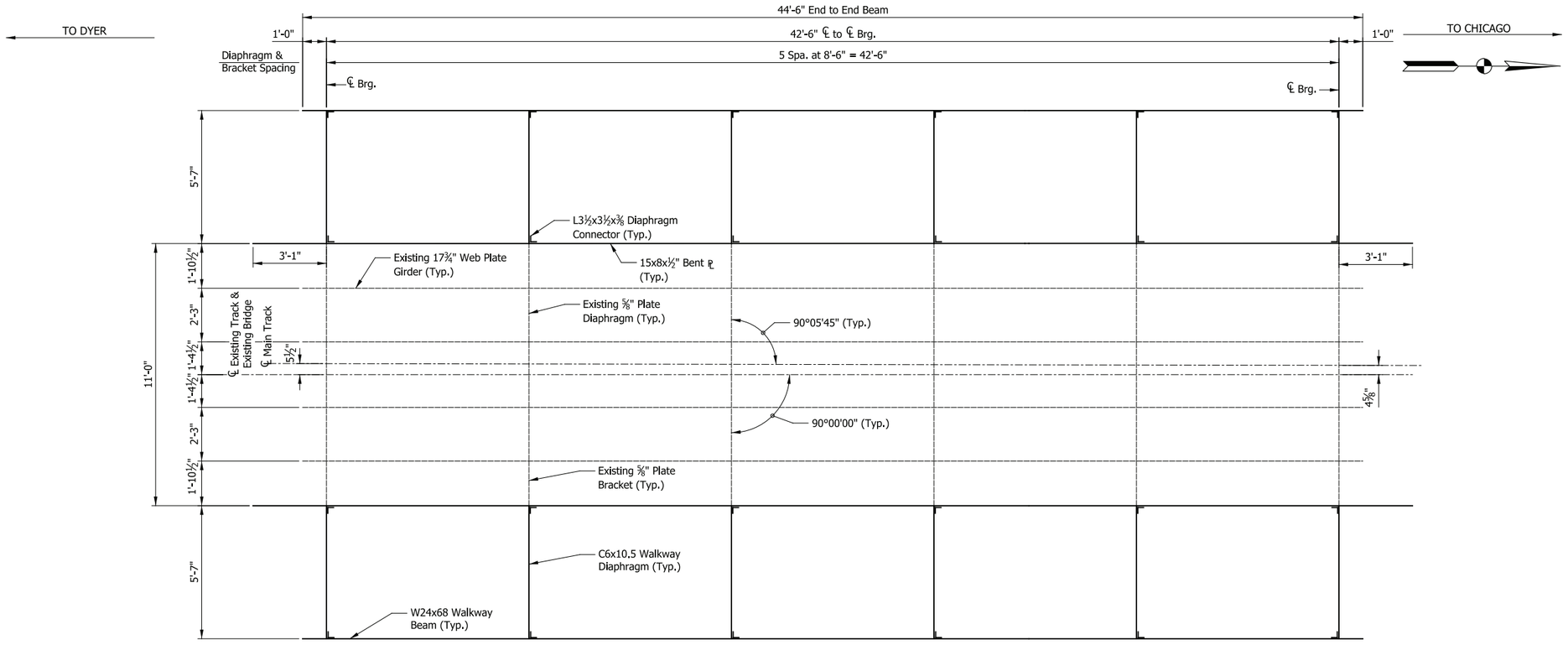
DRAWN:	DLZ-JLM
CHECKED:	DLZ-MAK
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

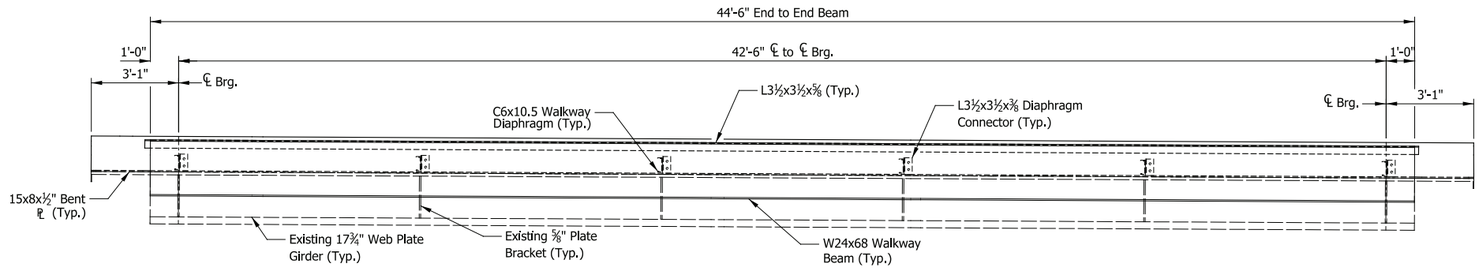
BRIDGE 106 - NICTD OVER BROADMOOR AVENUE SUBSTRUCTURE DETAILS

FILENAME	SHT_WL_ST_BR106_SubstrDet_01.dgn	SHEET
SCALE	AS NOTED	89 OF 218



FRAMING PLAN

Scale: ⅜" = 1'-0"



BEAM EXTERIOR ELEVATION

Scale: ⅜" = 1'-0"

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES BR106-05 OF BR106-05

PLOT DATE: November 08, 2017 6:14:59 PM JMIGUS

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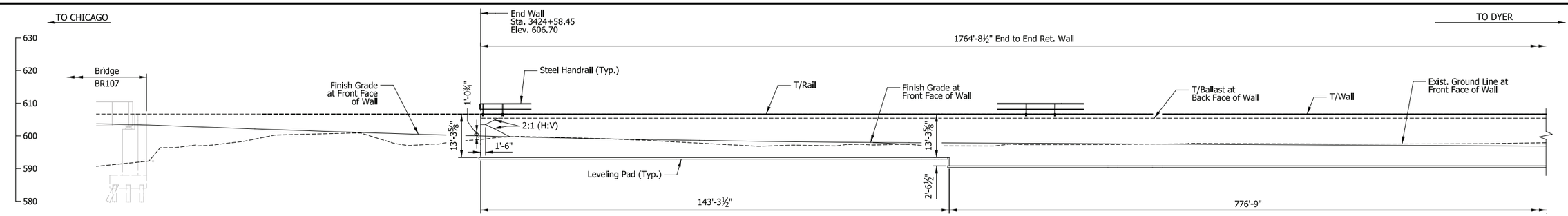
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

BRIDGE 106 - NICTD OVER BROADMOOR AVENUE FRAMING PLAN

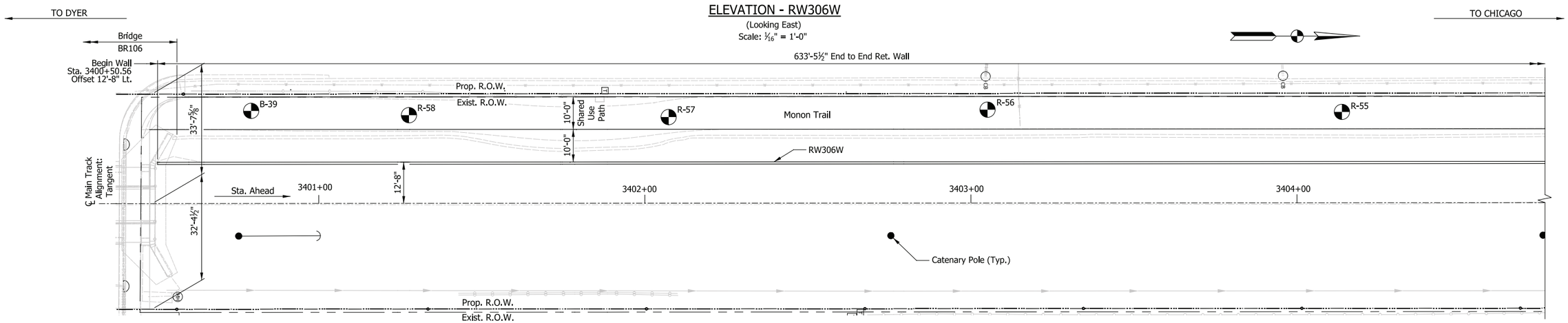
FILENAME	SHT_WL_ST_BR106_FramPlan_01.dgn
SCALE	AS NOTED

SHEET **90 OF 218**



ELEVATION - RW306W

(Looking East)
Scale: 1/16" = 1'-0"



PLAN

Scale: 1/16" = 1'-0"

DESIGN DATA

SPECIFICATIONS:
American Railway Engineering and Maintenance-of-Way Association (A.R.E.M.A.), Manual for Railway Engineering, 2016, Chapter 8 and 15.

LIVE LOADS:
Cooper E-50 and Ballast Train per Structural Design Criteria

DESIGN STRESSES:
Steel: fy = 50,000 psi (ASTM A709 Gr 50)
Reinforcing: fy = 60,000 psi (ASTM A615)
Concrete: f'c = 4,000 psi (Min.)

SHEET INDEX

NOTES

1. For track geometry, see Track Plans.
2. For clarity Catenary Poles and associated infrastructure not shown in elevation views. For details, see System Plans.
3. Field Verify Limits and Depth of Existing Footing at Broadmoor Bridge

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES RW306-01 OF RW306-11

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NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

WEST LAKE CORRIDOR
DYER TO HAMMOND, INDIANA

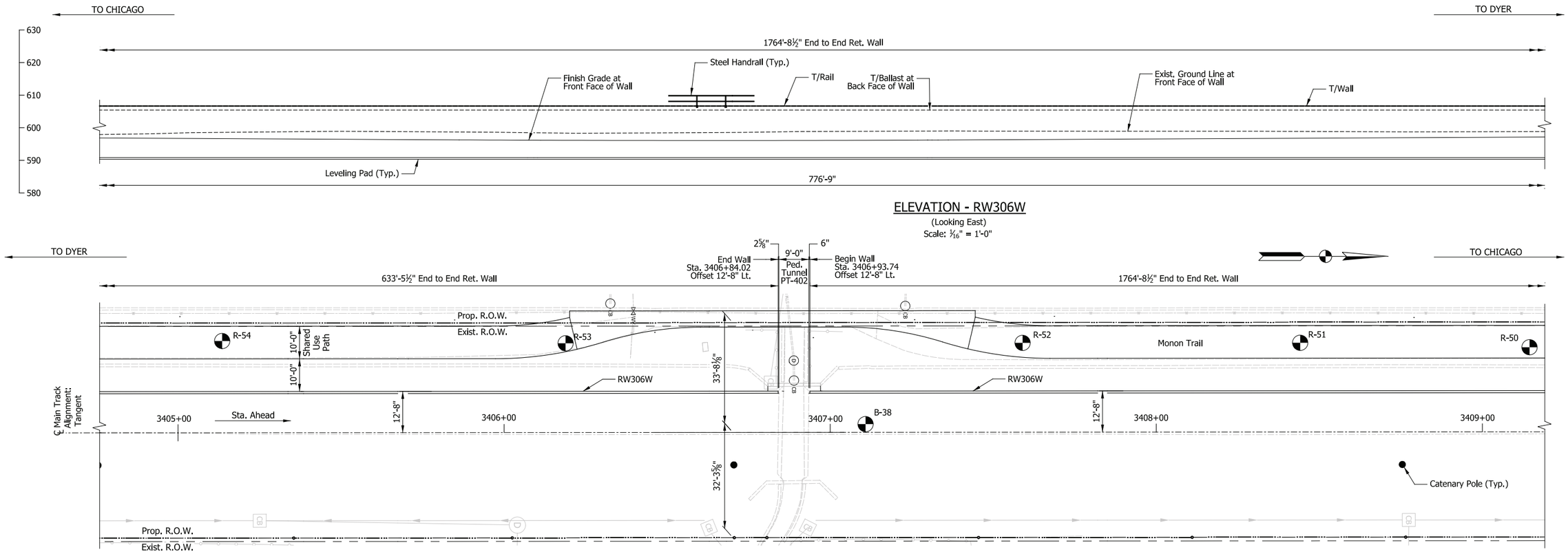
DESIGNED:	DLZ-JFM
DRAWN:	DLZ-JLM
CHECKED:	DLZ-CAG
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

RETAINING WALLS 306W & 306E
GENERAL PLAN & ELEVATION (1 OF 6)

FILENAME	SHT_WL_ST_RW306_GenPlan_01.dgn
SCALE	AS NOTED

SHEET **91 OF 218**



ELEVATION - RW306W

(Looking East)
Scale: 1/16" = 1'-0"

PLAN

Scale: 1/16" = 1'-0"

NOTES

1. For track geometry, see Track Plans.
2. For clarity Catenary Poles and associated infrastructure not shown in elevation views. For details, see System Plans.
3. Field Verify Limits and Depth of Existing Footing at Belden Place Tunnel.

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES RW306-02 OF RW306-11

PLOT DATE: November 08, 2017 6:15:14 PM JMIGUS

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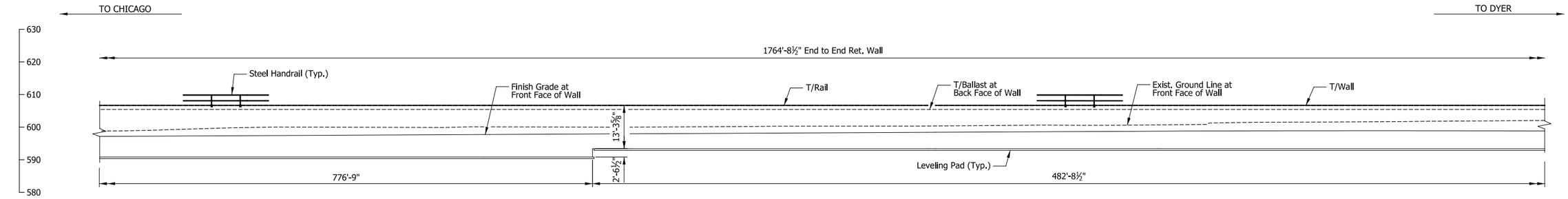
WEST LAKE CORRIDOR
DYER TO HAMMOND, INDIANA

DESIGNED:	DLZ-JFM
DRAWN:	DLZ-JLM
CHECKED:	DLZ-CAG
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

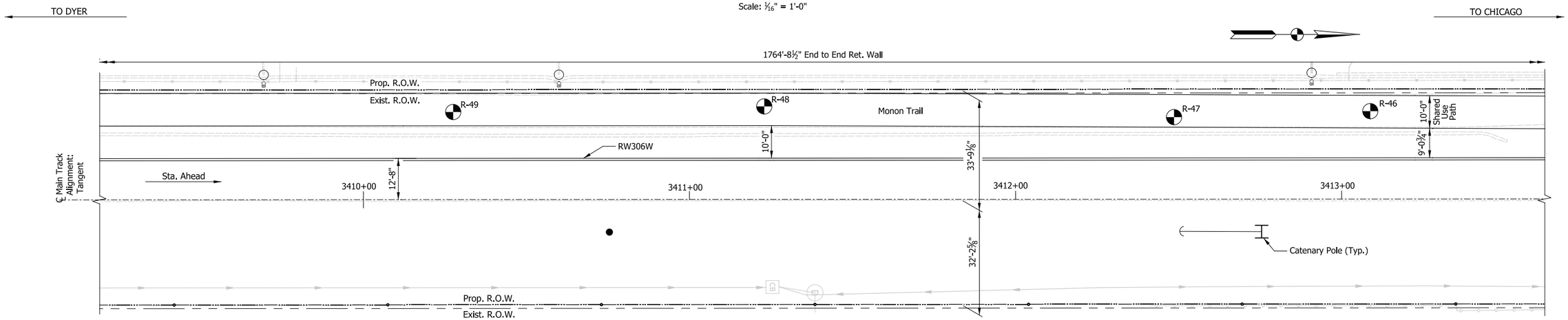
RETAINING WALLS 306W & 306E
GENERAL PLAN & ELEVATION (2 OF 6)

FILENAME	SHT_WL_ST_RW306_GenPlan_02.dgn	SHEET
SCALE	AS NOTED	92 OF 218



ELEVATION - RW306W

(Looking East)
Scale: 1/16" = 1'-0"



PLAN

Scale: 1/16" = 1'-0"

NOTES

1. For track geometry, see Track Plans.
2. For clarity Catenary Poles and associated infrastructure not shown in elevation views. For details, see System Plans.

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES RW306-03 OF RW306-11

PLOT DATE: November 08, 2017 6:15:20 PM JMIGUS

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WEST LAKE CORRIDOR
DYER TO HAMMOND, INDIANA

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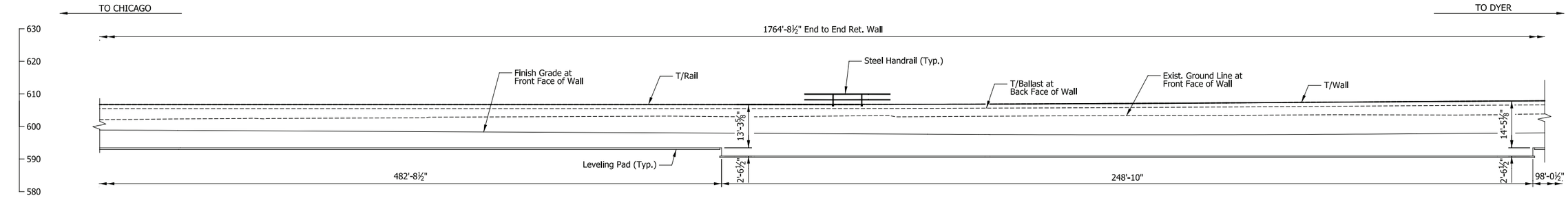
DRAWN:	DLZ-JLM
CHECKED:	DLZ-CAG
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

RETAINING WALLS 306W & 306E
GENERAL PLAN & ELEVATION (3 OF 6)

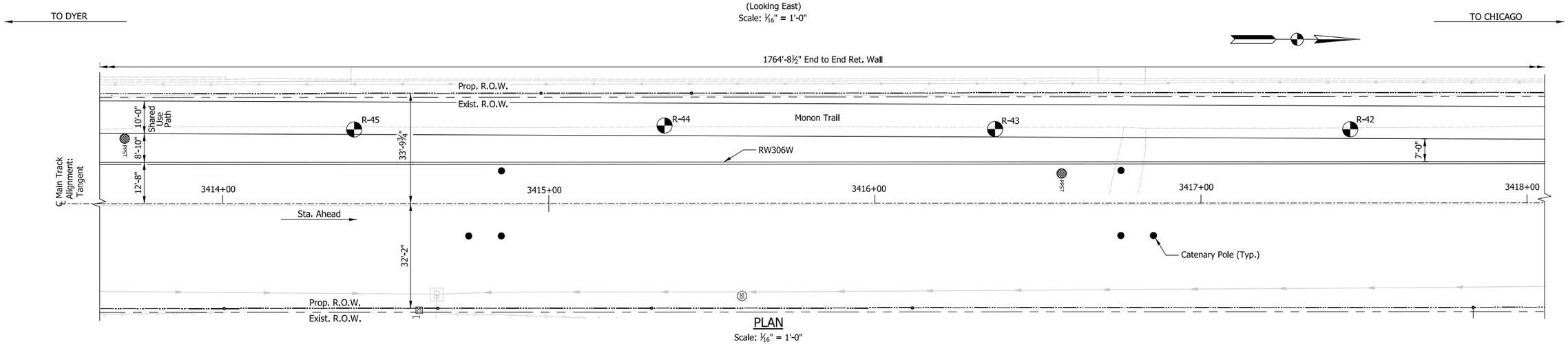
FILENAME	SHT_WL_ST_RW306_GenPlan_03.dgn
SCALE	AS NOTED

SHEET **93 OF 218**



ELEVATION - RW306W

(Looking East)
Scale: 1/16" = 1'-0"



PLAN

Scale: 1/16" = 1'-0"

NOTES

1. For track geometry, see Track Plans.
2. For clarity Catenary Poles and associated infrastructure not shown in elevation views. For details, see System Plans.

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES RW306-04 OF RW306-11

PLOT DATE: November 08, 2017 6:15:26 PM JMIGUS

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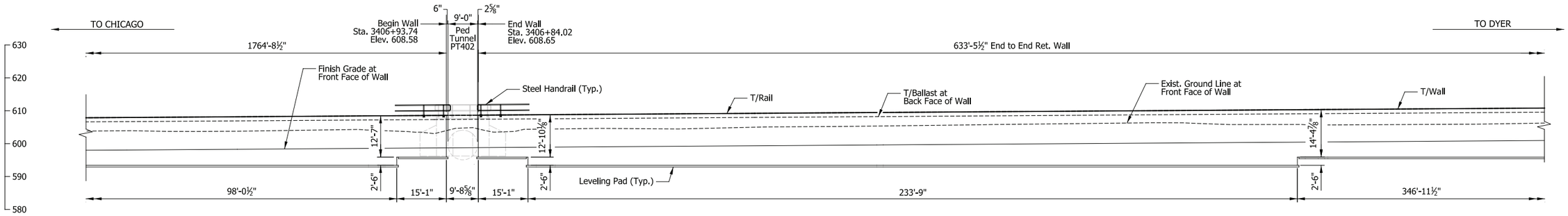
DESIGNED:	DLZ-JFM
DRAWN:	DLZ-JLM
CHECKED:	DLZ-CAG
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

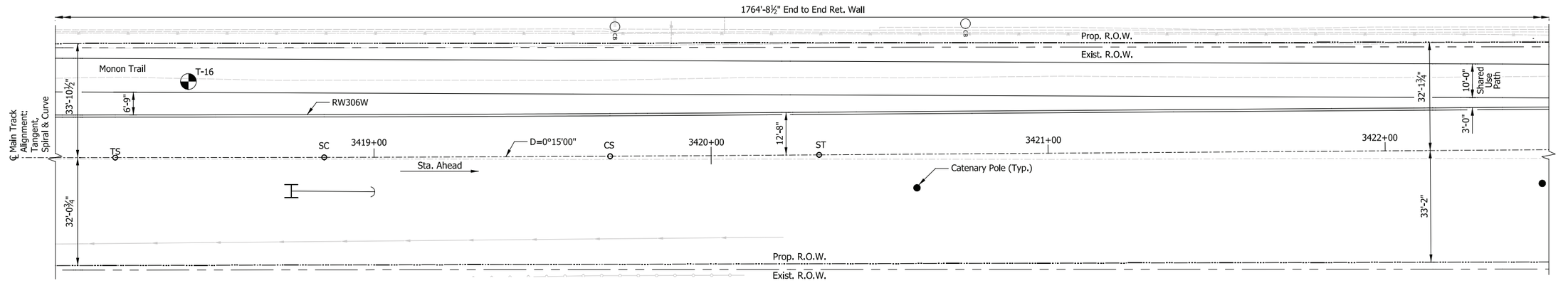
RETAINING WALLS 306W & 306E
GENERAL PLAN & ELEVATION (4 OF 6)

FILENAME	SHT_WL_ST_RW306_GenPlan_04.dgn	SHEET
SCALE	AS NOTED	**94 OF 218**



ELEVATION - RW306W

(Looking East)
Scale: 1/16" = 1'-0"



PLAN

Scale: 1/16" = 1'-0"

NOTES

1. For track geometry, see Track Plans.
2. For clarity Catenary Poles and associated infrastructure not shown in elevation views. For details, see System Plans.
3. Field Verify Limits and Depth of Existing Footing at Belden Place Tunnel.

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES RW306-05 OF RW306-11

PLOT DATE: November 08, 2017 6:15:33 PM JMIGUS

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South Bend, IN 46615
www.dlz.com

ISSUE	DATE	DESCRIPTION
.	.	.

NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

WEST LAKE CORRIDOR
DYER TO HAMMOND, INDIANA

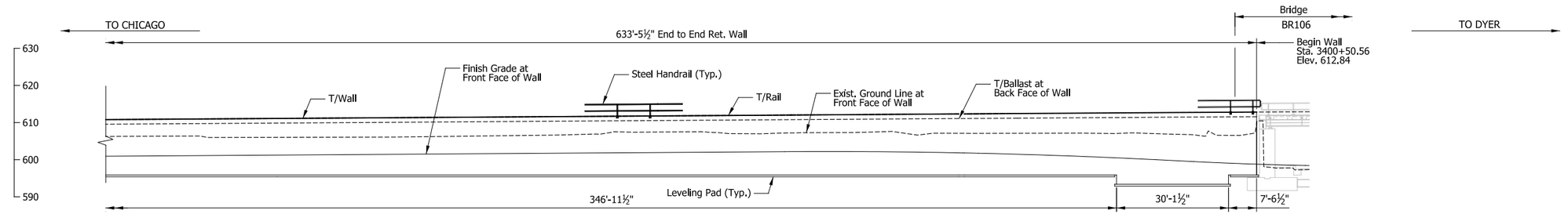
DESIGNED:	DLZ-JFM
DRAWN:	DLZ-JLM
CHECKED:	DLZ-CAG
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

RETAINING WALLS 306W & 306E
GENERAL PLAN & ELEVATION (5 OF 6)

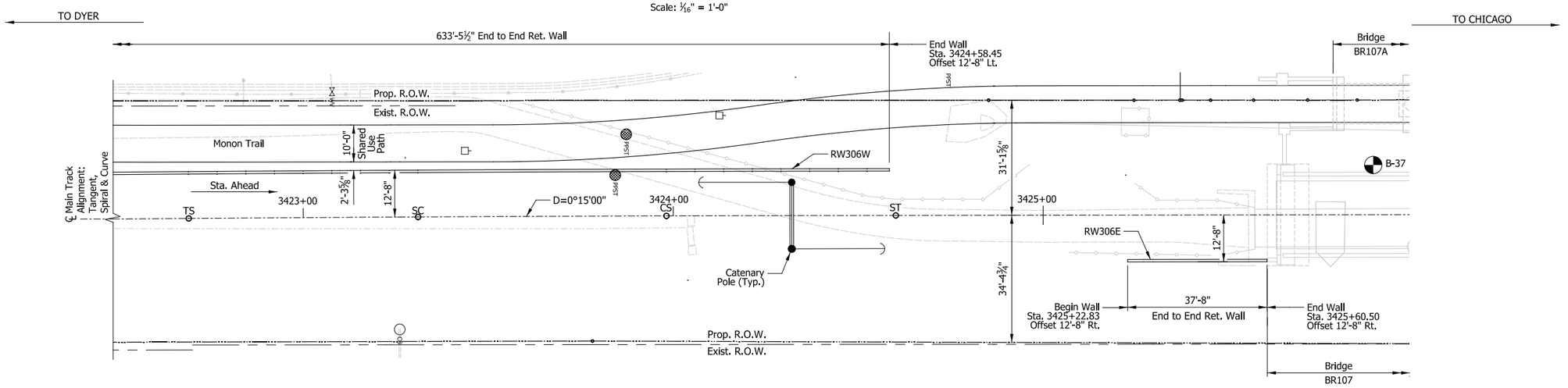
FILENAME	SHT_WL_ST_RW306_GenPlan_05.dgn
SCALE	AS NOTED

SHEET **95 OF 218**



ELEVATION - RW306W

(Looking East)
Scale: 1/16" = 1'-0"



PLAN

Scale: 1/16" = 1'-0"

ELEVATION - RW306E

(Looking West)
Scale: 1/16" = 1'-0"

NOTES

1. For track geometry, see Track Plans.
2. For clarity Catenary Poles and associated infrastructure not shown in elevation views. For details, see System Plans.
3. Field Verify Limits and Depth of Existing Footing at Broadmoor Bridge.

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES RW306-06 OF RW306-11

PLOT DATE: November 08, 2017 6:15:38 PM JMIGUS

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ISSUE	DATE	DESCRIPTION

NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

WEST LAKE CORRIDOR
DYER TO HAMMOND, INDIANA

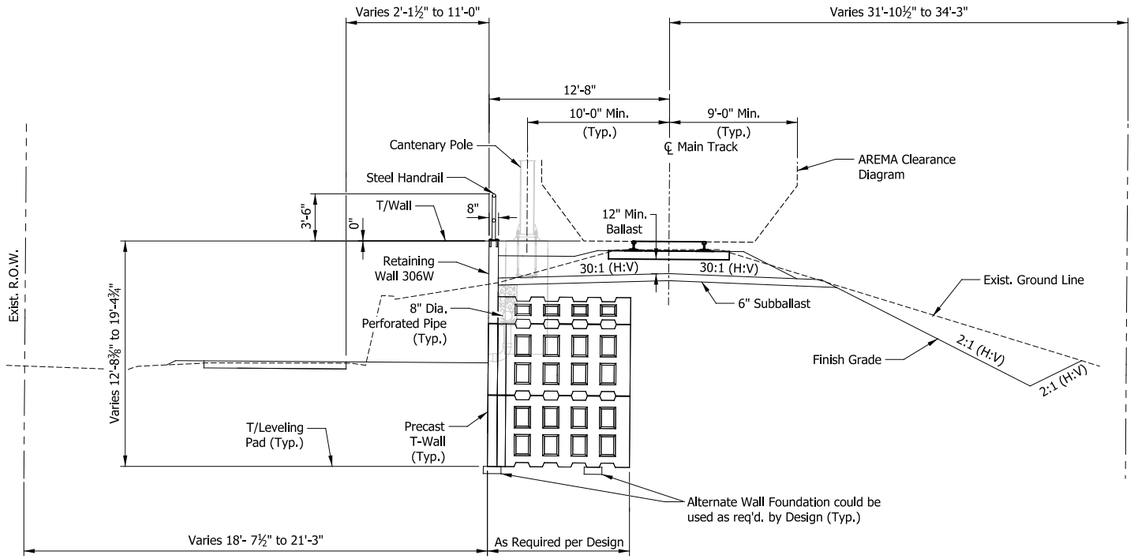
DESIGNED:	DLZ-JFM
DRAWN:	DLZ-JLM
CHECKED:	DLZ-CAG
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

RETAINING WALLS 306W & 306E
GENERAL PLAN & ELEVATION (6 OF 6)

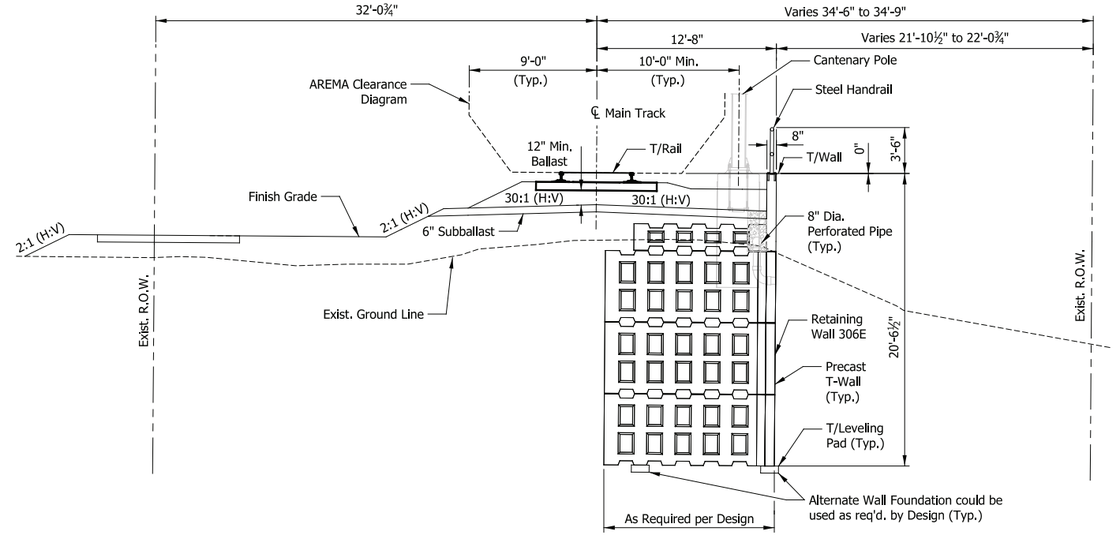
FILENAME	SHT_WL_ST_RW306_GenPlan_06.dgn
SCALE	AS NOTED

SHEET **96 OF 218**



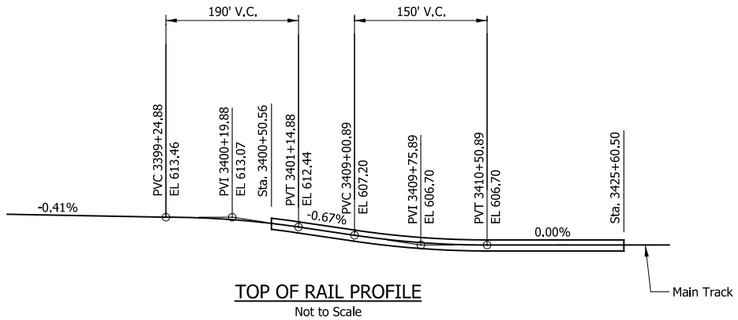
TYPICAL SINGLE WALL SECTION LEFT

(Looking Upstation)
Scale: 3/16" = 1'-0"



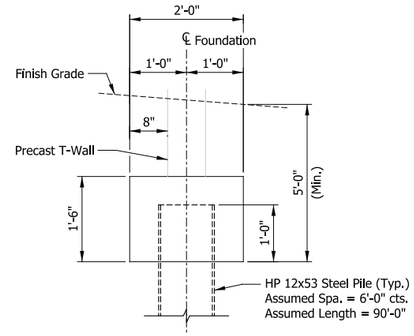
TYPICAL SINGLE WALL SECTION RIGHT

(Looking Upstation)
Scale: 3/16" = 1'-0"



TOP OF RAIL PROFILE

Not to Scale



ALTERNATIVE WALL FOUNDATION

Scale: ¾" = 1'-0"

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES RW306-07 OF RW306-11

PLOT DATE: November 08, 2017 6:15:44 PM JMIGUS

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ISSUE	DATE	DESCRIPTION
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NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

WEST LAKE CORRIDOR
DYER TO HAMMOND, INDIANA

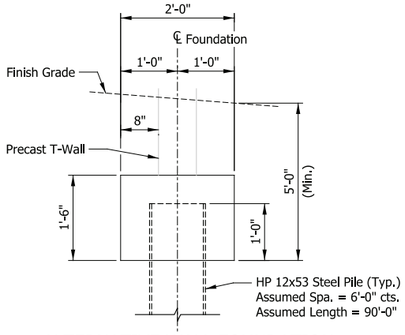
DESIGNED:	DLZ-JFM
DRAWN:	DLZ-JLM
CHECKED:	DLZ-CAG
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

RETAINING WALLS 306W & 306E
TYPICAL DETAILS (1 OF 2)

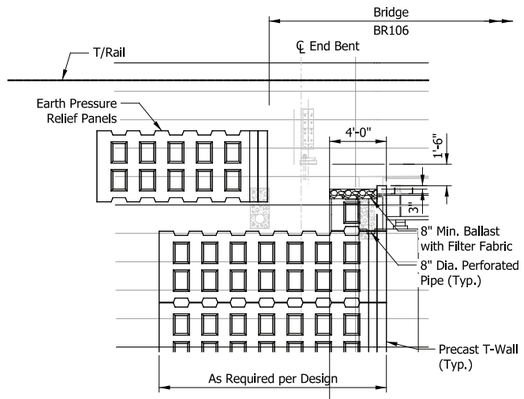
FILENAME	SHT_WL_ST_RW306_TypDet_01.dgn
SCALE	AS NOTED

SHEET **97 OF 218**



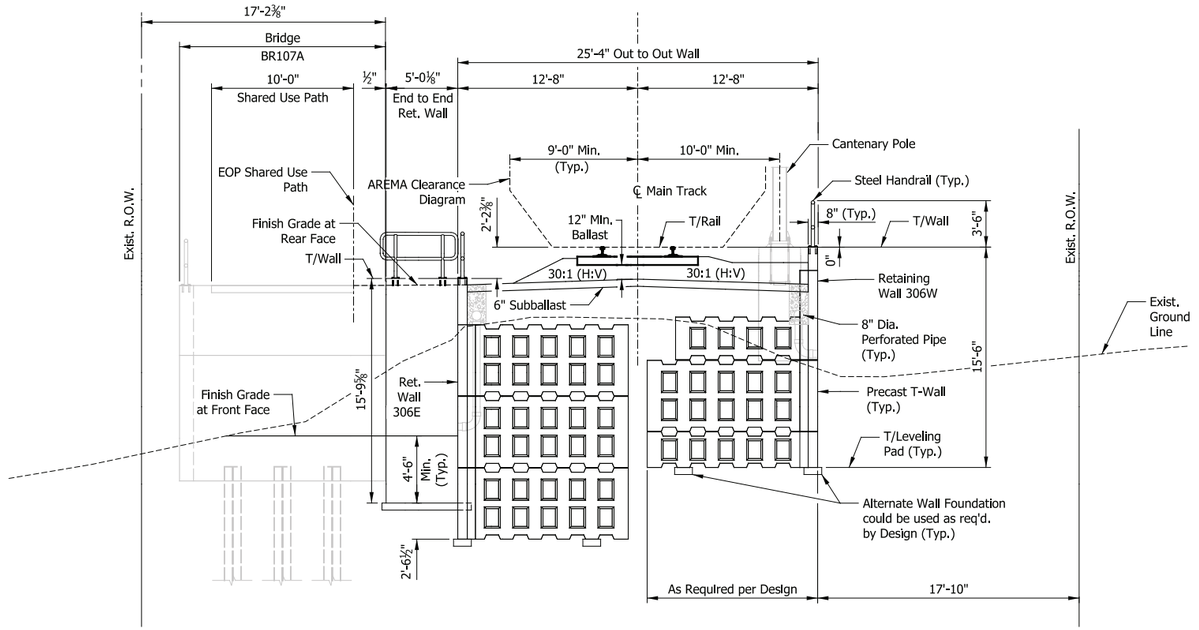
ALTERNATIVE WALL FOUNDATION

Scale: ¾" = 1'-0"



SECTION THRU END BENT

Scale: 3/16" = 1'-0"



ELEVATION RET. WALL 306CN

(Looking Downstation)

Scale: 3/16" = 1'-0"

Drawing Not Used

PLOT DATE: November 08, 2017 6:15:50 PM JMIGUS

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33 East Highway 12
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WEST LAKE CORRIDOR
DYER TO HAMMOND, INDIANA

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES RW306-08 OF RW306-11

DESIGNED:	DLZ-JFM
DRAWN:	DLZ-JLM
CHECKED:	DLZ-CAG
DATE:	07/21/17

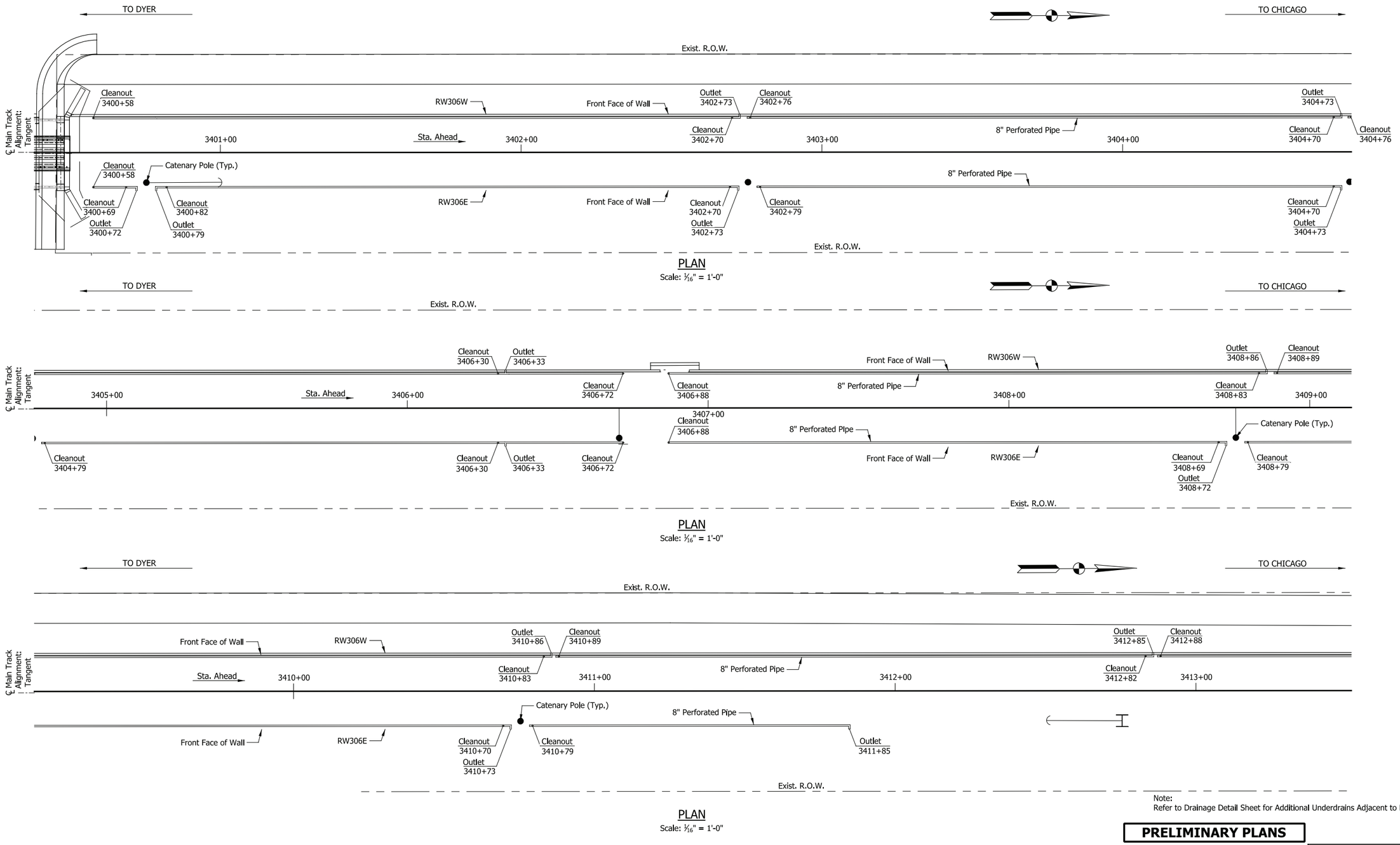
NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

RETAINING WALLS 306W & 306E

TYPICAL DETAILS (2 OF 2)

FILENAME	SHT_WL_ST_RW306_TypDet_02.dgn
SCALE	AS NOTED

SHEET **98 OF 218**



Note:
Refer to Drainage Detail Sheet for Additional Underdrains Adjacent to Bridge.

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES RW306-09 OF RW306-11

PLOT DATE: November 08, 2017 6:15:58 PM JMIGUS

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33 East Highway 12
Chesterton, Indiana 46304

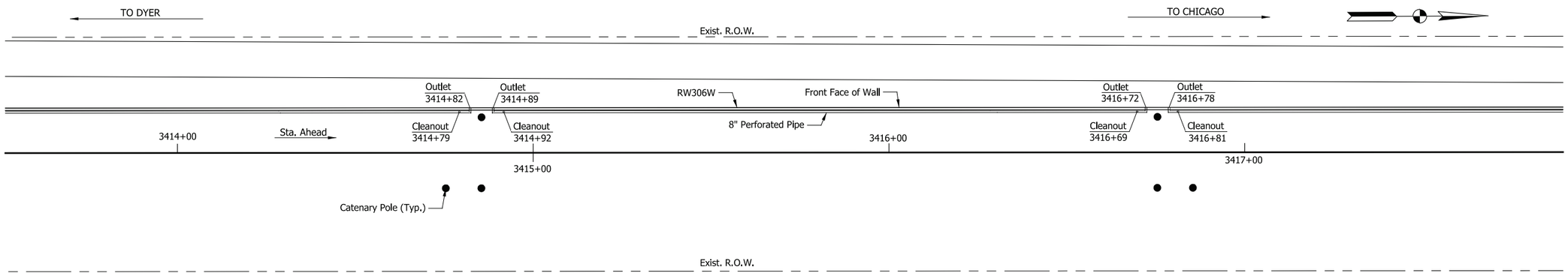
DYER TO HAMMOND, INDIANA

DESIGNED:	ASP-CAK
DRAWN:	ASP-CAK
CHECKED:	ASP-GAL
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

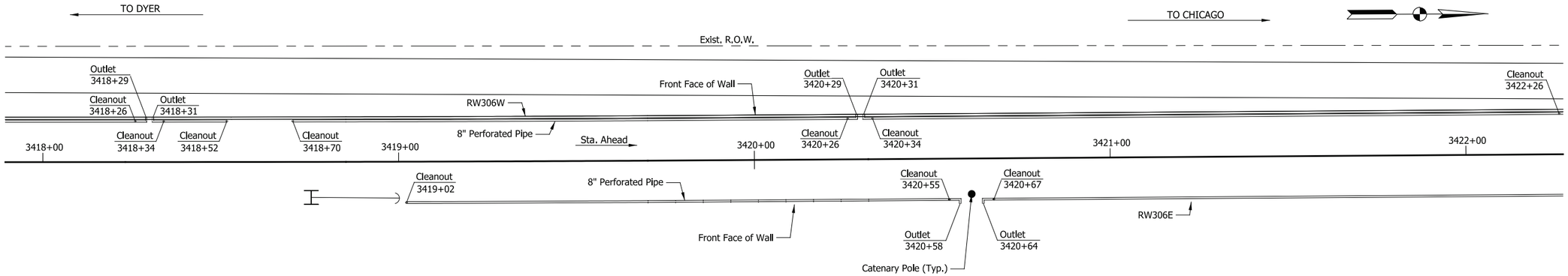
RETAINING WALLS 306W & 306E DRAINAGE PLAN (1 OF 2)

FILENAME	SHT_WL_ST_RW306_DrainPlan_01.dgn	SHEET
SCALE	AS NOTED	99 OF 218



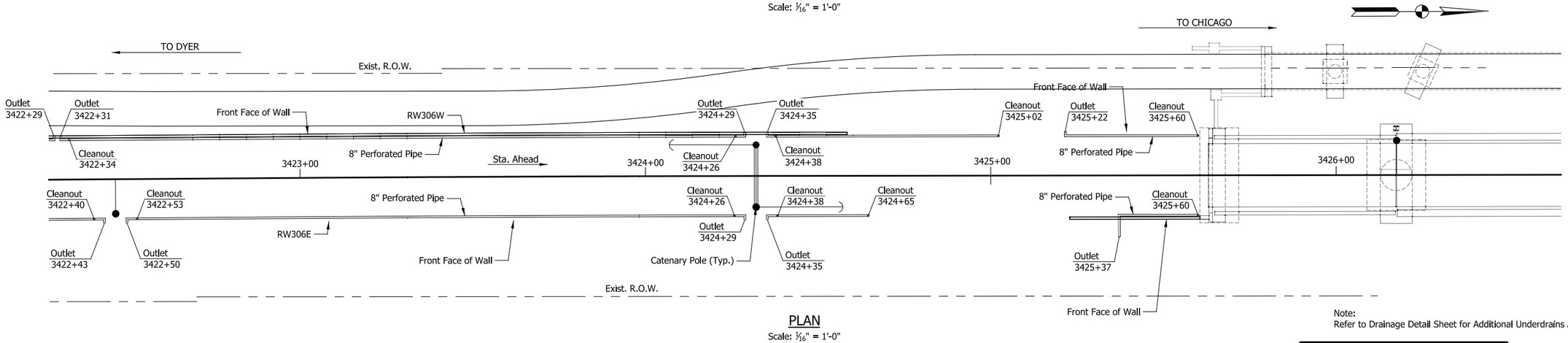
PLAN

Scale: 1/16" = 1'-0"



PLAN

Scale: 1/16" = 1'-0"



PLAN

Scale: 1/16" = 1'-0"

Note:
Refer to Drainage Detail Sheet for Additional Underdrains Adjacent to Bridge.

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES RW306-10 OF RW306-11

PLOT DATE: November 08, 2017 6:16:25 PM JMIGUS

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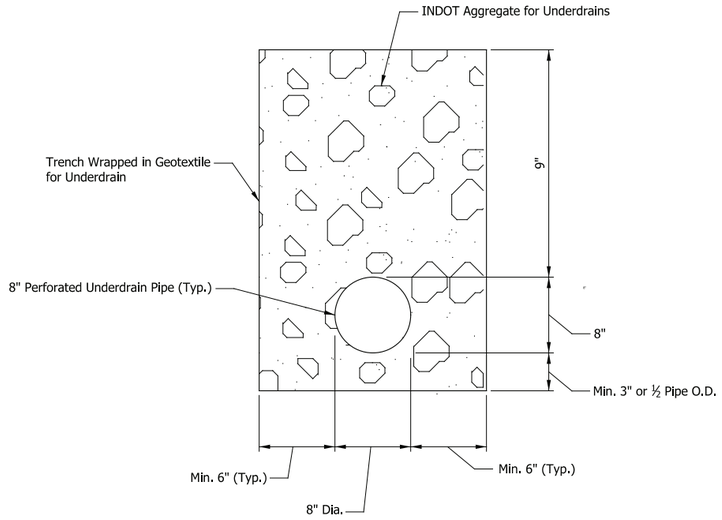
DYER TO HAMMOND, INDIANA

DESIGNED:	ASP-CAK
DRAWN:	ASP-CAK
CHECKED:	ASP-GAL
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

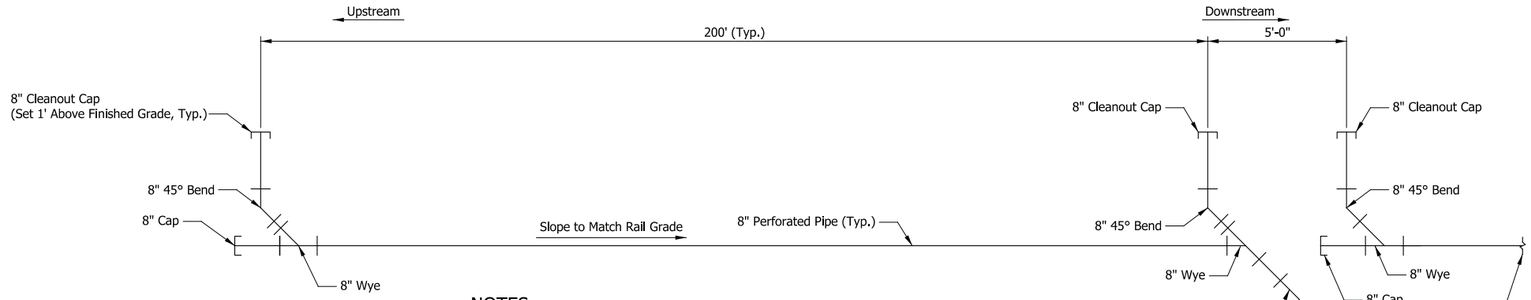
RETAINING WALLS 306W & 306E
DRAINAGE PLAN (2 OF 2)

FILENAME	SHT_WL_ST_RW306_DrainPlan_02.dgn	SHEET
SCALE	AS NOTED	**100 OF 218**



TYPICAL UNDERDRAIN SECTION

Scale: ½" = 1'-0"

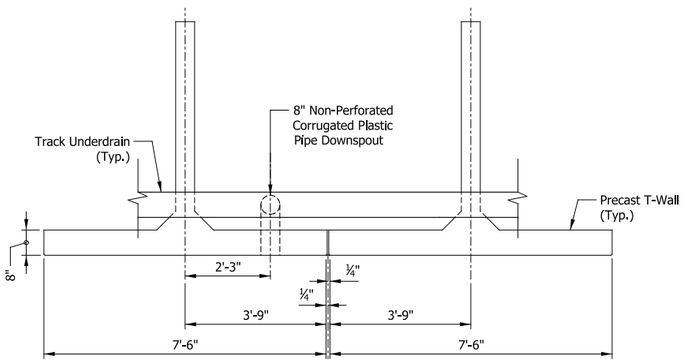


NOTES

1. Provide Underdrain As Shown In Retaining Wall Typical Section Detail and Retaining Wall Drainage Plans. At Downstream Limits Of Wall, Daylight Underdrain To Side Ditch With INDOT Outlet Protector, Type 2 And Rodent Screen.
2. All Fittings, Cleanout Piping, and Vertical Piping Shall Be Solid Wall.
3. Select Locations at Low Points in Rail Underdrain Profile May Include One Outlet Serving Underdrain Upstream in Both Directions. Provide Additional Fittings as Required. See Plan View for Locations.
4. Outlet Station Location in Plan View are Approximate. Final Constructed Outlet Stations / Wall Penetrations shall Occur at Locations Shown per Typical Wall Penetration Detail.

TYPICAL TRACK UNDERDRAIN SCHEMATIC AT RETAINING WALLS

Scale: Not to Scale

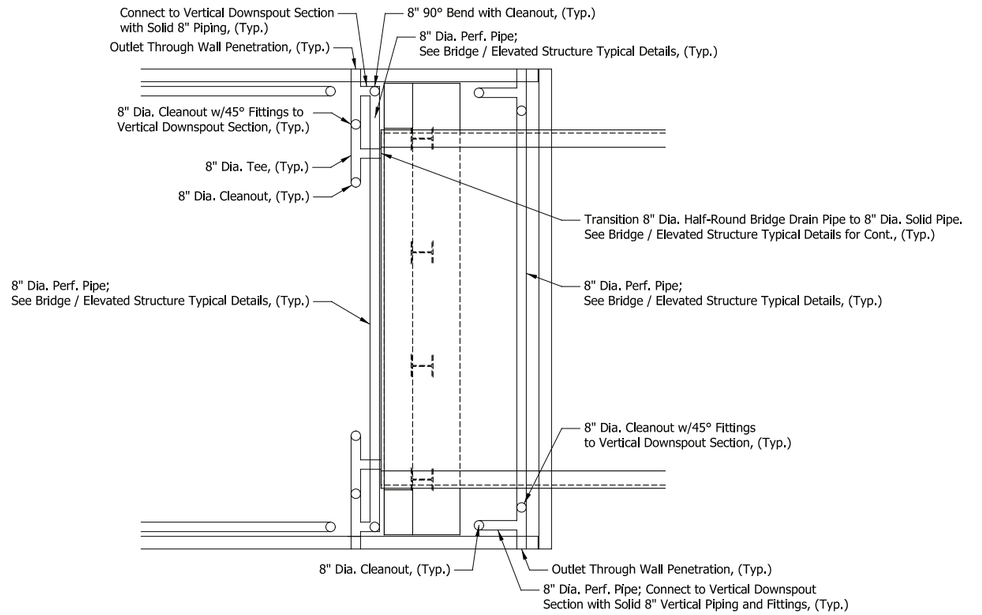


TYPICAL WALL PENETRATION DETAIL

Scale: ½" = 1'-0"

	Outlet Invert	
Outlet Station	Right	Left
3400+72	604.8	
3400+79	604.7	
3402+73	602.0	608.9
3404+73	600.7	608.9
3406+33	600.6	607.1
3408+72	599.4	
3408+86		606.3
3410+73	598.6	
3410+86		605.8
3411+85	598.6	
3412+85		604.7
3414+82		603.0
3414+89		603.0
3416+72		601.8
3416+78		601.7
3418+29		601.3
3418+31		601.2
3420+29		600.7
3420+31		600.7
3420+58	599.4	
3420+64	599.4	
3422+29		600.1
3422+31		600.0
3422+43	598.1	
3422+50	598.1	
3424+29	603.1	601.4
3424+35	603.4	601.5
3425+22		600.4
3425+37	605.0	

UNDERDRAIN OUTLET ELEVATION SUMMARY TABLE



TYPICAL UNDERDRAIN PLAN DETAIL AT RETAINING WALL INTERFACE WITH BRIDGE OR ELEVATED STRUCTURE

Scale: Not to Scale

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES RW306-11 OF RW306-11

PLOT DATE: November 08, 2017 6:16:43 PM JMIGUS

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ISSUE	DATE	DESCRIPTION

NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

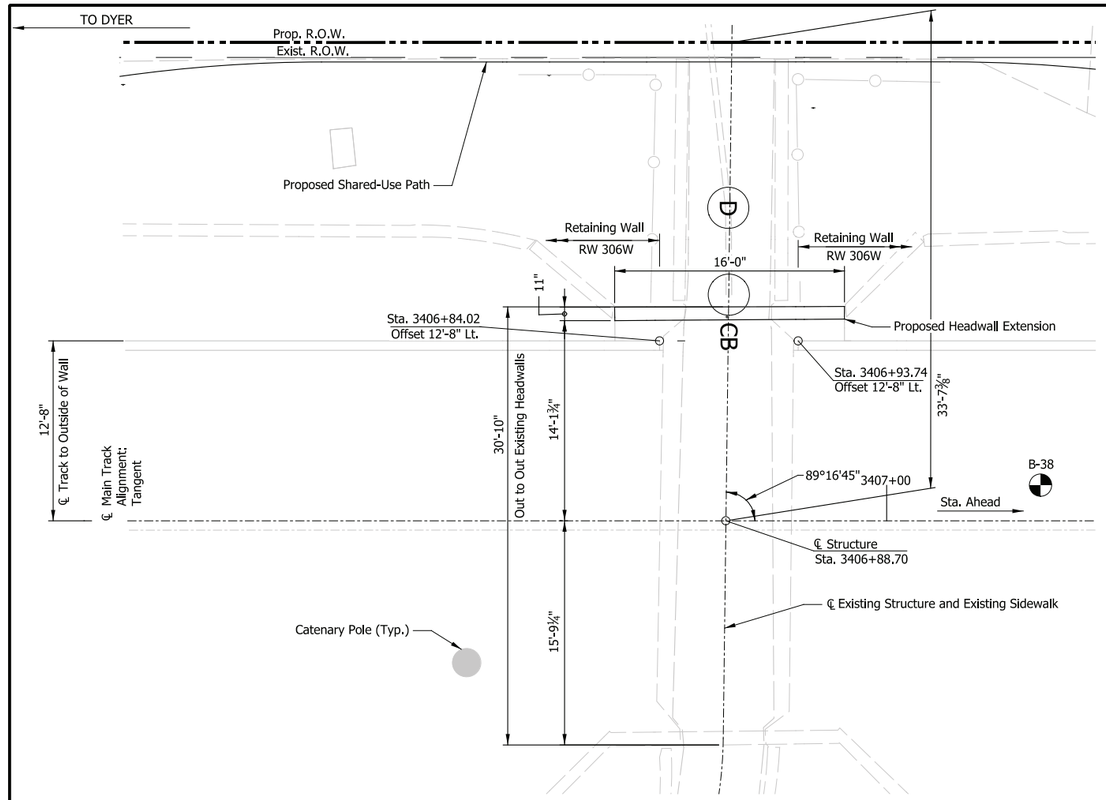
WEST LAKE CORRIDOR
DYER TO HAMMOND, INDIANA

DESIGNED:	ASP-CAK
DRAWN:	ASP-CAK
CHECKED:	ASP-GAL
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

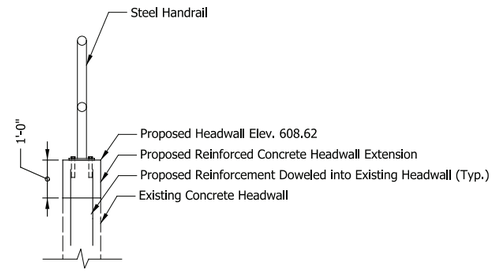
RETAINING WALLS 306W & 306E DRAINAGE DETAILS

FILENAME SHT_WL_ST_RW306_DrainDet_01.dgn
SCALE AS NOTED
SHEET **101 OF 218**



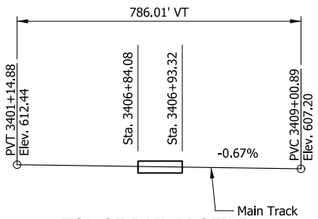
PLAN

Scale: 3/16" = 1'-0"



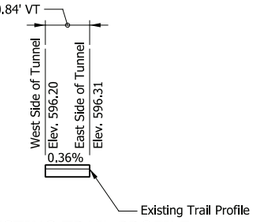
SECTION THROUGH HEADWALL EXTENSION

Scale: ½" = 1'-0"



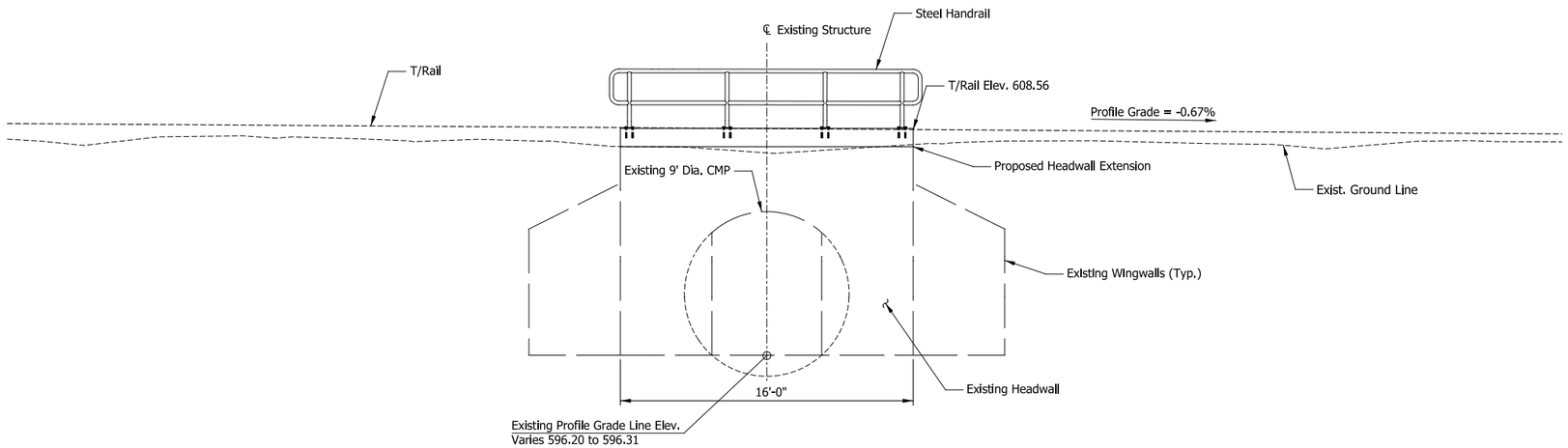
TOP OF RAIL PROFILE

Not to Scale



EXISTING TRAIL PROFILE

Not to Scale



SECTION ⊥ TO STRUCTURE

Scale: ¼" = 1'-0"

DESIGN DATA

SPECIFICATIONS:
American Railway Engineering and Maintenance-of-Way Association (A.R.E.M.A.), Manual for Railway Engineering, 2016, Chapter 8 and 15.

LIVE LOADS:
Cooper E-50 and Ballast Train per Structural Design Criteria

DEAD LOADS:
Maximum Cover = 49 inches

DESIGN STRESSES:
Reinforcing: fy = 60,000 psi (ASTM A615)
Concrete: f'c = 4,000 psi (Min.)

NOTES

1. For track geometry, see Track Plans

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES PT402-01 OF PT402-00

PLOT DATE: November 08, 2017 6:17:17 PM JMIGUS

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ISSUE	DATE	DESCRIPTION
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33 East Highway 12
Chesterton, Indiana 46304

WEST LAKE CORRIDOR
DYER TO HAMMOND, INDIANA

DESIGNED:	DLZ - TMB
DRAWN:	DLZ - TMB
CHECKED:	DLZ - MAK
DATE:	07/21/17

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

PEDESTRIAN TUNNEL 402 AT BELDEN PLACE GENERAL PLAN & SECTIONS

FILENAME	SHT_WL_ST_PT402_GenPlan_01.dgn
SCALE	AS NOTED

SHEET **102 OF 218**